

On activation of the starting solenoid,  
the start position must be reached.

APPLICATION  
Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 Q  
Edition : 12.06.87  
Superceeded : 11.82  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 759  
Injection pump  
Pump designation : PE6P110A320RS3108Y  
EP type number : 0 411 816 729  
Governor  
Governor design. : RQV250...1100PA649  
Governor no. : 0 421 815 346

Customer-spec. information  
Customer : VOLVO

Engine : THD100EC

1st version kW : 180.0  
Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
: (2.95...3.15)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm3/ : 13.8...14.0

100H.: (13.5...14.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/ : 3.2...3.6

100H.: (2.9...3.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 4.10...4.90

3rd speed 1/min: 700

Sleeve travel mm: 6.30...6.70

4th speed 1/min: 950

Sleeve travel mm: 6.30...6.70

5th speed 1/min: 1100

Sleeve travel mm: 7.00...7.50

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 138.0...140.0

1000H.: (135.0...143.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)



### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 55...63

#### Testing:

1st c-rod trav.mm : 10.10

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1205...1235

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

### LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.70

Speed 1/min : 250

C-rod trav.mm : 5.00...5.20

C-rod trav.mm : 2.00

Speed 1/min : 345...405

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.60...9.80

2nd pressure hPa : 275

C-rod trav.mm : 9.90...10.00

3rd pressure hPa : 400

C-rod trav.mm : 10.70...10.90

### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 105.5...108.5

1000H.: (103.0...111.0)

### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 170.0...200.0

1000H.: (166.0...204.0)

Contr.-rod trav.mm: 20.00...21.00

### LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 5.00...5.20

Del.quantity cm3/ : 32.0...36.0

1000H.: (29.5...38.5)

Dispersion cm3/ : 3.00

1000H.: (6.00)

#### Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.

Permissible alteration from 2.20...2.90  
mm

On activation of the starting solenoid,  
the start position must be reached.

### APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 Q1  
 Edition : 12.06.87  
 Superseded : 11.82  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 760  
 Injection pump  
 Pump designation : PE6P110A32ORS3108X  
 EP type number : 0 411 816 730  
 Governor  
 Governor design. : RQV250...1100PA649  
 Governor no. : 0 421 813 346

Customer-spec. information  
 Customer : VOLVO

Engine : THD100ED

1st version kW : 203.0  
 Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm3/ : 15.9...16.2

100H.: (15.6...16.4)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/ : 3.2...3.6

100H.: (2.9...3.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 4.10...4.90

3rd speed 1/min: 700

Sleeve travel mm: 6.30...6.70

4th speed 1/min: 950

Sleeve travel mm: 6.30...6.70

5th speed 1/min: 1100

Sleeve travel mm: 7.00...7.50

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1200

Del.quantity cm3/ : 159.0...162.0

1000H.: (156.5...164.5)

Dispersion cm3/ : 4.00

1000H.: (7.50)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

### Testing:

1st c-rod trav.mm : 11.10

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1205...1235

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever

position degrees: 8...12

### Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.70

Speed 1/min : 250

C-rod trav.mm : 5.00...5.20

C-rod trav.mm : 2.00

Speed 1/min : 345...405

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 1200

Contr.-rod trav.mm: 12.10...12.20

### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.30...9.40

2nd pressure hPa : 290

C-rod trav.mm : 9.60...9.70

3rd pressure hPa : 700

C-rod trav.mm : 11.80...12.00

## FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 105.5...108.5

1000H.: (103.0...111.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 160.0...190.0

1000H.: (156.0...194.0)

Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 5.00...5.20

Del.quantity cm3/ : 32.0...36.0

1000H.: (29.5...38.5)

Dispersion cm3/ : 3.00

1000H.: (6.00)

### Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.

Permissible alteration from 2.20...2.90  
mm

On activation of the starting solenoid,  
the start position must be reached.

## APPLICATION

Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 R6  
Edition : 09.03.87  
Superceeded : 1.85  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 763  
Injection pump  
Pump designation : PE6P110A72ORS3040  
EP type number : 0 411 816 713  
Governor  
Governor design. : RQV200...1000PA555-1  
Governor no. : 0 421 813 361

Customer-spec. information  
Customer : SCANIA

Engine : DS11 14

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40  
                  : (3.25...3.45)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 13.60...13.70  
-----  
Del.quantity cm3/ : 16.8...17.0  
-----  
100H.: (16.6...17.2)  
-----  
Dispersion cm3/ : 0.6  
-----  
100H.: (0.8)  
-----  
2nd speed 1/min: 225.0  
Contr.-rod trav. m: 4.4...4.6  
Del.quantity cm3/ : 1.7...2.1  
100H.: (-)  
Dispersion cm3/ : 0.2  
100H.: (0.4)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225  
Sleeve travel mm: 1.30...1.40  
2nd speed 1/min: 330  
Sleeve travel mm: 2.30...2.70  
3rd speed 1/min: 550  
Sleeve travel mm: 3.90...4.20  
4th speed 1/min: 1040  
Sleeve travel mm: 8.00...8.20  
5th speed 1/min: 1160  
Sleeve travel mm: 9.60...9.90

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1070  
Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Charge press. hPa : 900  
Del.quantity cm3/ : 168.0...170.0  
1000H.: (166.0...172.0)  
Dispersion cm3/ : 6.00  
1000H.: (8.00)

## HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 57...65

Testing:  
1st c-rod trav.mm : 12.60  
Speed 1/min : 1040...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1150...1180  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 4...12

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 5.90  
Speed 1/min : 225  
C-rod trav.mm : 4.40...4.60  
C-rod trav.mm : 2.00  
Speed 1/min : 310...370

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.60...13.70

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 12.00...12.10  
2nd pressure hPa : 420  
C-rod trav.mm : 13.20...13.30  
3rd pressure hPa : 290  
C-rod trav.mm : 12.30...12.50

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 900  
Speed 1/min : 1000  
Del.quantity cm3/ : 171.5...176.5  
1000H.: (169.0...179.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 133.0...137.0  
1000H.: (131.0...139.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

A07

Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.40...4.60  
Del.quantity cm3/ : 17.0...21.0  
1000H.: (-)  
Dispersion cm3/ : 2.00  
1000H.: (4.00)

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on August 29, 1983

Start of delivery - engine: 19° before  
TDC

Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 03  
Edition : 12.06.87  
Superceeded : 10.12.86  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 768  
Injection pump  
Pump designation : PE6P110A320RS3080-1  
EP type number : 0 411 816 734  
Governor  
Governor design. : RQV250...1025PA589  
Governor no. : 0 421 813 332

Customer-spec. information  
Customer : VOLVO

Engine : TD100FA

1st version kW : 220.0  
Speed 1/min: 2050

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
                  : (2.95...3.15)  
Contr.-rod trav.mm: 9.00...12.00

A08

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.20...13.30

Del.quantity cm3/ : 17.9...18.2

100H.: (17.7...18.5)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 4.3...4.5

Del.quantity cm3/ : 1.5...1.9

100H.: (1.2...2.1)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 350

Sleeve travel mm: 2.20...2.80

3rd speed 1/min: 430

Sleeve travel mm: 3.50...3.90

4th speed 1/min: 1080

Sleeve travel mm: 8.40...8.50

5th speed 1/min: 1150

Sleeve travel mm: 9.50...9.80

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1080

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 179.5...182.5

1000H.: (177.0...185.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 61...69

### Testing:

1st c-rod trav.mm : 12.20  
Speed 1/min : 1085...1095  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1160...1190  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13

### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5.80  
Speed 1/min : 250  
C-rod trav.mm : 4.30...4.50

## CONSTANT REGULATION

Speed 1/min : 270...380

compensator (LDA,ADA,ALDA)

## 1st version

### Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.20...13.30

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.50...10.60  
2nd pressure hPa : 670  
C-rod trav.mm : 13.00...13.10  
3rd pressure hPa : 270  
C-rod trav.mm : 10.80...11.10

## FUEL-DELIVERY CHARACTERISTICS

### 1st version

Charge press. hPa : 900  
Speed 1/min : 1000  
Del.quantity cm3/ : 171.0...177.0  
1000H.: (169.0...179.0)  
Charge press. hPa : -  
Speed 1/min : 700  
Del.quantity cm3/ : 132.0...135.0  
1000H.: (129.5...137.5)

## STARTING FUEL DELIVERY

A09

Speed 1/min : 100  
Del.quantity cm3/ : 150.0...200.0  
1000H.: (146.0...204.0)  
Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 4.30...4.50  
Del.quantity cm3/ : 15.0...19.0  
1000H.: (12.5...21.5)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

### Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12,0 K  
Edition : 21.05.87  
Superceeded : 12.9.86  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 772  
Injection pump  
Pump designation : PE6P120A32ORS3118  
EP type number : 0 411 826 726  
Governor  
Governor design. : RQV250...1025PA657  
Governor no. : 0 421 813 368

Customer-spec. information  
Customer : VOLVO

Engine : TD 121 F

1st version kW : 282.4  
Speed 1/min: 2050

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70  
                  : (2.55...2.75)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.30...13.40

Del.quantity cm3/ : 23.8...24.1

100H.: (23.5...24.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.3...3.5

Del.quantity cm3/ : 1.8...2.3

100H.: (-)

Dispersion cm3/ : 0.5

100H.: (0.7)

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1090

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1200

Del.quantity cm3/ : 238.0...241.0

1000H.: (235.0...244.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

Testing:

1st c-rod trav.mm : 12.30

Speed 1/min : 1085...1095

2nd c-rod trav.mm : 4.00

Speed 1/min : 1150...1180

3rd c-rod trav.mm : 4.00



4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 4.80  
Speed 1/min : 250  
C-rod trav.mm : 3.30...3.50  
C-rod trav.mm : 2.00  
Speed 1/min : 285...345

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500  
Pressure hPa : 1200  
Contr.-rod trav.mm: 13.30...13.40

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 8.80...9.00  
2nd pressure hPa : 800  
C-rod trav.mm : 13.10...13.20  
3rd pressure hPa : 170  
C-rod trav.mm : 9.20...9.50

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 700  
Del.quantity cm3/ : 138.0...142.0  
1000H.: (135.0...145.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...280.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 3.30...3.50  
Del.quantity cm3/ : 18.0...23.0  
1000H.: (-)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### Remarks:

Delivery-valve spring pre-tension =

2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12, 0 I  
Edition : 21.05.87  
Superceeded : 25.9.86  
Calibrating oil : ISO-4113

Combination no. : 0 401 846 773

Injection pump  
Pump designation : PE6P120A32ORS3116  
EP type number : 0 411 826 727  
Governor  
Governor design. : RQV250...102SPA657  
Governor no. : 0 421 813 368

Customer-spec. information  
Customer : VOLVO

Engine : TD 120 G

1st version kW : 242.7  
Speed 1/min: 2050

### TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

### START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70  
                  : (2.55...2.75)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.40...11.50

Del.quantity cm3/ : 19.7...19.9

100H.: (19.4...20.2)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.6...5.8

Del.quantity cm3/ : 2.2...2.6

100H.: (1.9...2.9)

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 200

Sleeve travel mm: 0.60...0.90

2nd speed 1/min: 600

Sleeve travel mm: 4.50...5.50

3rd speed 1/min: 670

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 930

Sleeve travel mm: 6.40...6.60

5th speed 1/min: 1025

Sleeve travel mm: 0.00...7.50

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1080

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 700

Del.quantity cm3/ : 197.0...199.0  
1000H.: (194.0...202.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 10.40

Speed 1/min : 1065...1075

2nd c-rod trav.mm : 4.00

Speed 1/min : 1125...1155

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.10

Speed 1/min : 250

C-rod trav.mm : 5.60...5.80

C-rod trav.mm : 2.00

Speed 1/min : 350...410

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.00...9.10

2nd pressure hPa : 430

C-rod trav.mm : 10.80...10.90

3rd pressure hPa : 230

C-rod trav.mm : 9.50...9.70

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 148.0...150.0

1000H.: (145.0...153.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...270.0  
1000H.: (236.0...274.0)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 5.60...5.80  
Del.quantity cm3/ : 22.0...26.0  
1000H.: (19.0...29.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 Q4  
Edition : 12.06.87  
Superceeded : 9.3.87  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 785  
Injection pump  
Pump designation : PE6P110A32ORS3108  
EP type number : 0 411 816 727  
Governor  
Governor design. : RQV250...1100PAS89  
Governor no. : 0 421 813 307

Customer-spec. information  
Customer : VOLVO

Engine : N10/TD1016B

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
: (2.95...3.15)

Contr.-rod trav. mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav. mm: 11.90...12.00

Del. quantity cm<sup>3</sup>/ : 15.2...15.4

100H.: (14.9...15.7)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 4.1...4.3

Del. quantity cm<sup>3</sup>/ : 1.7...2.1

100H.: (1.4...2.3)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 450

Sleeve travel mm: 3.70...4.10

3rd speed 1/min: 700

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 1000

Sleeve travel mm: 6.40...6.60

5th speed 1/min: 1160

Sleeve travel mm: 8.20...8.40

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1180

Cont.-rod travel mm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

### 1st version

Speed 1/min: 700

Charge press. hPa : 900

Del. quantity cm<sup>3</sup>/ : 152.0...154.0

1000H.: (149.0...157.0)

Dispersion cm<sup>3</sup>/ : 4.00

1000H.: (7.50)

## HIGHEST RATED SPEED

### 1st version

Control-lever  
position degrees: 59...67

Testing:

1st c-rod trav.mm : 10.90  
Speed 1/min : 1160...1170  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1215...1245  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever  
position degrees: 4...12

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5.60  
Speed 1/min : 250  
C-rod trav.mm : 4.10...4.30  
C-rod trav.mm : 2.00  
Speed 1/min : 310...370

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 11.90...12.00

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.10...10.20  
2nd pressure hPa : 550  
C-rod trav.mm : 11.70...11.80  
3rd pressure hPa : 350  
C-rod trav.mm : 10.40...10.60

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900  
Speed 1/min : 1000  
Del.quantity cm3/ : 146.0...150.0  
1000H.: (143.0...153.0)  
Charge press. hPa : -  
Speed 1/min : 700  
Del.quantity cm3/ : 116.0...119.0  
1000H.: (113.5...121.5)

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 170.0...200.0  
1000H.: (170.0...200.0)

LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 4.10...4.30  
Del.quantity cm3/ : 17.0...21.0  
1000H.: (14.5...23.5)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 9,0 E  
Edition : 12.09.86  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 401 846 804

Injection pump  
Pump designation : PE6P120A32ORS3141  
EP type number : 0 411 826 744  
Governor  
Governor design. : RQV200...1100PA729-1  
Governor no. : 0 421 813 470

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DS9 02

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 10.40...10.50

Del.quantity cm3/ : 13.2...13.4

100H.: (13.0...13.6)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 4.4...4.6

Del.quantity cm3/ : 1.2...1.6

100H.: (-)

Dispersion cm3/ : 0.2

100H.: (0.4)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 0.60...0.70

2nd speed 1/min: 350

Sleeve travel mm: 2.20...2.70

3rd speed 1/min: 425

Sleeve travel mm: 3.60...4.20

4th speed 1/min: 1150

Sleeve travel mm: 8.40...8.60

5th speed 1/min: 1250

Sleeve travel mm: 9.30...9.60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 132.0...134.0

1000H.: (130.0...136.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

Testing:

1st c-rod trav.mm : 9.40

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1235...1265

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 3...11

Testing:

Speed 1/min : 100

C-rod trav.mm min : 5.90

Speed 1/min : 225

C-rod trav.mm : 4.40...4.60

C-rod trav.mm : 2.00

Speed 1/min : 290...350

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1100

Del.quantity cm3/ : 143.0...151.0

1000H.: (141.0...153.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 290.0...340.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225

Contr.-rod trav.mm: 4.40...4.60

Remarks:

#### ADDITIONAL INFORMATION

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Check and set without ROBO diaphragm

For comb. with letter index see

VDI-I-400/116.



For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on December 18, 1986

Start of delivery - engine: 17° before  
TDC

Firing sequence of engine:

1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 9,0 E 1  
 Edition : 26.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113,  
 Combination no. : 0 401 846 804 Q  
 Injection pump  
 Pump designation : PE6P120A320RS3141Q  
 EP type number : 0 411 826 744  
 Governor  
 Governor design. : RQV200...1100PA729-1  
 Governor no. : 0 421 813 470

Customer-spec. information  
 Customer : SAAB-SCANIA

Engine : DS9 02

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
 -----  
 Contr.-rod trav.mm: 10.00...10.10  
 -----  
 Del.quantity cm3/ : 12.8...13.0  
 -----  
 100H.: (12.5...13.3)  
 -----  
 Dispersion cm3/ : 0.6  
 -----  
 100H.: (0.9)  
 -----

2nd speed 1/min: 225.0  
 Contr.-rod trav. m: 4.4...4.6  
 Del.quantity cm3/ : 1.1...1.5  
 100H.: (-)  
 Dispersion cm3/ : 0.2  
 100H.: (0.4)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225  
 Sleeve travel mm: 0.60...0.70  
 2nd speed 1/min: 350  
 Sleeve travel mm: 2.20...2.70  
 3rd speed 1/min: 425  
 Sleeve travel mm: 3.60...4.20  
 4th speed 1/min: 1150  
 Sleeve travel mm: 8.40...8.60  
 5th speed 1/min: 1250  
 Sleeve travel mm: 9.30...9.60

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 1150  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 700  
 Del.quantity cm3/ : 128.0...130.0  
 1000H.: (125.0...133.0)  
 Dispersion cm3/ : 6.00  
 1000H.: (9.00)

# HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

## Testing:

1st c-rod trav.mm : 9.40

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1235...1265

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

# LOWEST RATED SPEED I

Control-lever

position degrees: 3...11

## Testing:

Speed 1/min : 100

C-rod trav.mm min : 5.90

Speed 1/min : 225

C-rod trav.mm : 4.40...4.60

C-rod trav.mm : 2.00

Speed 1/min : 290...350

# FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1100

Del.quantity cm3/ : 132.0...140.0

1000H.: (130.0...142.0)

# STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 290.0...340.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

# LOW IDLE

Speed 1/min : 225

Contr.-rod trav.mm: 4.40...4.60

Del.quantity cm3/ : 11.0...15.0

1000H.: (-)

## Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

## ADDITIONAL INFORMATION

Check and set without R0B0 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on December 18, 1986

Start of delivery - engine: 17° before  
TDC

Firing sequence of engine:

1-5-3-6-2-4.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : SCA 9,0 G  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 846 815  
  
Injection pump  
Pump designation : PE6P120A32ORS3171  
EP type number : 0 411 826 749  
Governor  
Governor design. : RQ750PA796  
Governor no. : 0 421 801 345

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DN9 41

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00

A22

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 9.00...9.10  
-----  
Del.quantity cm3/ : 11.2...11.4  
-----  
100H.: (10.9...11.7)  
-----  
Dispersion cm3/ : 0.5  
-----  
100H.: (0.8)

**SLEEVE POSITION**

Control-lever position  
Degree: 45...47  
Speed 1/min: 600  
Contr.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 112.0...114.0  
1000H.: (109.0...117.0)  
Dispersion cm3/ : 5.00  
1000H.: (8.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 14...22

**Testing:**

1st c-rod trav.mm : 8.00  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 769...782  
4th speed 1/min : 850  
C-rod trav.mm : 0.00...1.00

**STARTING FUEL DELIVERY**

Speed 1/min : 100  
Del.quantity cm3/ : 290.0...340.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

HIGH IDLE

Contr.-rod trav.mm: 4.60...4.80

Dispersion cm<sup>3</sup>/ : 4.00  
1000H.: (7.00)

Remarks:

APPLICATION

Generator

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on December 6, 1986  
Engine start of delivery: 18° BTDC

Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 9,0 G 1  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 816  
Injection pump  
Pump designation : PE6P120A32ORS3171  
EP type number : 0 411 826 749  
Governor  
Governor design. : RQ900PA796-1  
Governor no. : 0 421 801 346

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DN 9 41

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 850  
-----  
Contr.-rod trav.mm: 9.00...9.10  
-----  
Del.quantity cm3/ : 12.0...12.2  
-----  
100H.: (11.7...12.5)  
-----  
Dispersion cm3/ : 0.5  
-----  
100H.: (0.8)

## SLEEVE POSITION

Control-lever position  
Degree: 45...47  
Speed 1/min: 600  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 850  
Del.quantity cm3/ : 120.0...122.0  
1000H.: (117.0...125.0)  
Dispersion cm3/ : 5.00  
1000H.: (8.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 15...23

Testing:  
1st c-rod trav.mm : 8.00  
Speed 1/min : 900...905  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 923...938  
4th speed 1/min : 1000  
C-rod trav.mm : 0.00...1.00

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 290.0...340.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

HIGH IDLE

Contr.-rod trav.mm: 4.50...4.70

Dispersion cm<sup>3</sup>/ : 4.00  
1000H.: (7.00)

Remarks:

ADDITIONAL INFORMATION

Check and set without ROB0 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on December 6, 1986  
Engine start of delivery: 18° BTDC

Firing sequence of engine:  
1-5-3-6-2-4.





# LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

## Testing:

Speed 1/min : 100  
C-rod trav.mm min : ?  
Speed 1/min : 250  
C-rod trav.mm : ?

## CONSTANT REGULATION

Speed 1/min : 250...400  
compensator (LDA,ADA,ALDA)

## 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 11.70...11.80

## Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : ?  
2nd pressure hPa : 430  
C-rod trav.mm : 11.50...11.60  
3rd pressure hPa : 75  
C-rod trav.mm : ?

## FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 700  
Del.quantity cm3/ : 168.0...170.0  
1000H.: (165.0...173.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 250  
Del.quantity cm3/ : 18.0...23.0  
1000H.: (15.0...26.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

## Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm,  
Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12,1 A1  
 Edition : 02.06.87  
 Superseded : 12.9.86  
 Calibrating oil : ISO-4113

Combination no. : 0 401 846 828

Injection pump  
 Pump designation : PE6P120A32ORS3165  
 EP type number : 0 411 826 747  
 Governor  
 Governor design. : RQV300...102SPA657-1  
 2  
 Governor no. : 0 421 813 571

Customer-spec. information  
 Customer : VOLVO

Engine : TID 121G

1st version kW : 243.0  
 Speed 1/min: 2050

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70  
 : (2.55...2.75)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.60...11.70

Del.quantity cm3/ : 19.7...20.0

100H.: (19.4...20.3)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 3.7...3.9

Del.quantity cm3/ : 2.2...2.6

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.70...1.80

2nd speed 1/min: 370

Sleeve travel mm: 2.60...2.90

3rd speed 1/min: 430

Sleeve travel mm: 3.60...3.80

4th speed 1/min: 1080

Sleeve travel mm: 6.80...7.00

5th speed 1/min: 1160

Sleeve travel mm: 8.10...8.30

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1070

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1000

Del.quantity cm3/ : 197.0...200.0  
1000H.: (194.0...203.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 53...61

Testing:  
1st c-rod trav.mm : 10.60  
Speed 1/min : 1085...1095  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1160...1190  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 5.20  
Speed 1/min : 300  
C-rod trav.mm : 3.70...3.90

#### CONSTANT REGULATION

Speed 1/min : 300...400

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 1000  
Contr.-rod trav.mm: 11.60...11.70

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.30...10.40  
2nd pressure hPa : 300  
C-rod trav.mm : 11.40...11.50  
3rd pressure hPa : 150  
C-rod trav.mm : 10.60...10.80

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 700  
Del.quantity cm3/ : 166.0...169.0  
1000H.: (163.0...172.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...280.0  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 3.70...3.90  
Del.quantity cm3/ : 22.0...26.0  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet	:	MB 11,0 S 3
Edition	:	09.03.87
Superceeded	:	12.9.86
Calibrating oil	:	ISO-4113
Combination no.	:	0 401 846 830
Injection pump		
Pump designation	:	PE6P110A32OLS3835
EP type number	:	0 411 816 749
Governor		
Governor design.	:	RQV300...950PA829K
Governer no.	:	0 421 815 166

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM441

```
1st version  kW    : 150.0
Speed        1/min: 1900
```

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values

START OF DELIVERY

Test pressure, bar: 25...27

```
Prestroke mm      : 4.00...4.10
                  : (3.95...4.15)
Contr.-rod trav.mm: 9.00...12.00
Cam sequence      : 6- 5- 5- 2- 4- 1
```

SD ang. spacing<sup>o</sup>CS: 0-45-120-165-240-285  
Tolerance + - <sup>o</sup>: 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed      1/mi: 950

Contr.-rod trav.mm: 13.10...13.20

Def. quantity cm<sup>3</sup>/ : 12.6...12.8

100H.: (12.3...13.0)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.8...8.9

Del. quantity cm3/ : 1.5...2.1  
100H.: (1.2...2.3)

Dispersion cm<sup>3</sup>/ : 0.4  
100H.: (0.7)

(B) Setting of injection pump with externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500  
Sleeve travel mm: 3.20...3.40

3rd speed 1/min: 800  
Sleeve travel mm: 5.90...6.10

4th speed 1/min: 1000  
Sleeve travel mm: 8.00...8.40

Sth speed 1/min: 1125  
Sleeve travel mm: 9.60...10.00

## SLEEVE POSITION

Control-lever position  
Degree: -1

Speed 17/min: 975  
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 950  
Del.quantity cm3/ : 126.0...128.0  
1000H.: (123.5...130.5)

Dispersion cm<sup>3</sup>/ : 4.00  
1000H.: (8.00)

Remarks:

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 57...65

Testing:

1st c-rod trav.mm : 12.10

Speed 1/min : 990...1000

2nd c-rod trav.mm : 4.00

Speed 1/min : 1080...1110

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 9...17

Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.60

Speed 1/min : 300

C-rod trav.mm : 8.80...9.00

#### CONSTANT REGULATION

Speed 1/min : 300...450

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 975

C-rod trav.mm : 13.10...13.20

2nd speed 1/min : 600

C-rod trav.mm : 12.90...13.10

3rd speed 1/min : 750

C-rod trav.mm : 13.10...13.30

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm<sup>3</sup>/ : 117.0...120.0

1000H.: (114.0...123.0)

Dispersion cm<sup>3</sup>/ : 6.00

1000H.: (9.00)

Speed 1/min : 750

Del.quantity cm<sup>3</sup>/ : 120.0...124.0

1000H.: (117.0...127.0)

Dispersion cm<sup>3</sup>/ : 6.00

1000H.: 9.00

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 120.0...140.0

1000H.: (116.0...144.0)

B03

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 D  
Edition : 12.09.86  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 401 846 831

Injection pump  
Pump designation : PE6P120A32ORS3183  
EP type number : 0 411 826 754  
Governor  
Governor design. : RQ250/1000PA832  
Governor no. : 0 421 801 368

Customer-spec. information  
Customer : DAF

Engine : WS 270

1st version kW : 265.0  
Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 850  
-----  
Contr.-rod trav.mm: 13.00...13.10  
-----  
Del.quantity cm3/ : 21.7...21.9  
-----  
100H.: (21.4...22.2)  
-----  
Dispersion cm3/ : 0.5  
-----  
100H.: (0.9)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav.m: 6.7...6.9  
Del.quantity cm3/ : 1.6...2.2  
100H.: (1.3...2.5)  
Dispersion cm3/ : 0.8  
100H.: (1.2)

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 550  
Contr.-rod travelmm: 15.60...16.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 850  
Charge press. hPa : 1000  
Del.quantity cm3/ : 217.0...219.0  
1000H.: (214.0...222.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 550  
Contr.-rod trav.mm: 16.0

Testing:  
1st c-rod trav.mm : 12.00  
Speed 1/min : 1035...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1160...1190  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 7.0

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.50  
Speed 1/min : 250  
C-rod trav.mm : 6.90...7.10  
C-rod trav.mm : 2.00  
Speed 1/min : 350...390

#### TORQUE CONTROL

Dimension a mm : -  
Torque-control curve - 1st version  
1st speed 1/min : 850  
C-rod trav.mm : 13.30...13.40  
2nd speed 1/min : 1000  
C-rod trav.mm : 13.20...13.40

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 1000  
Contr.-rod trav.mm: 13.00...13.10

#### Measurement

Speed 1/min : 600  
1st pressure hPa : -  
C-rod trav.mm : 10.10...10.30  
2nd pressure hPa : 650  
C-rod trav.mm : 12.40...12.50  
3rd pressure hPa : 390  
C-rod trav.mm : 10.70...11.00

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 600  
Del.quantity cm3/ : 144.0...146.0  
1000H.: (141.0...149.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 260.0...300.0  
1000H.: (256.0...304.0)

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 6.90...7.10

Del.quantity cm3/ : 14.0...20.0  
1000H.: (11.0...23.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 D1  
Edition : 15.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 831  
Injection pump  
Pump designation : PE6P120A32ORS3183-1Y  
EP type number : 0 411 826 765  
Governor  
Governor design. : RQ250/1000PA832  
Governor no. : 0 421 801 368

Customer-spec. information  
Customer : DAF

Engine : WS 282

1st version kW : 282.0  
Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 850  
-----  
Contr.-rod trav.mm: 13.10...13.20  
-----  
Del.quantity cm3/ : 21.9...22.1  
-----  
100H.: (21.6...22.4)  
-----  
Dispersion cm3/ : 0.5  
-----  
100H.: (0.9)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav.m: 6.9...7.1  
Del.quantity cm3/ : 1.4...2.0  
100H.: (1.1...2.3)  
Dispersion cm3/ : 0.8  
100H.: (1.2)

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 550  
Contr.-rod travelmm: 15.60...16.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 850  
Charge press. hPa : 1000  
Del.quantity cm3/ : 219.0...221.0  
1000H.: (216.0...224.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 550  
Contr.-rod trav.mm: 16.0

Testing:  
1st c-rod trav.mm : 12.10  
Speed 1/min : 1035...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1120...1150  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I  
Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 7.0

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 8.50  
Speed 1/min : 250  
C-rod trav.mm : 6.90...7.10  
C-rod trav.mm : 2.00  
Speed 1/min : 350...390

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 850  
C-rod trav.mm : 13.30...13.40  
2nd speed 1/min : 1000  
C-rod trav.mm : 13.20...13.40

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 1000  
Contr.-rod trav.mm: 13.10...13.20

#### Measurement

Speed 1/min : 600  
1st pressure hPa : -  
C-rod trav.mm : 10.10...10.30  
2nd pressure hPa : 650  
C-rod trav.mm : 12.40...12.50  
3rd pressure hPa : 390  
C-rod trav.mm : 10.70...11.00

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 600  
Del.quantity cm3/ : 144.0...146.0  
1000H.: (141.0...149.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 260.0...300.0  
1000H.: (256.0...304.0)

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 6.90...7.10  
Del.quantity cm3/ : 14.0...20.0  
1000H.: (11.0...23.0)

Dispersion    cm3/ : 8.00  
                 1000H.: (12.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 L 1  
Edition : 05.11.86  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 401 846 832

Injection pump  
Pump designation : PE6P120A320LS3815-11  
EP type number : 0 411 826 826  
Governor  
Governor design. : RQ300/1050PA840  
Governor no. : 0 421 801 374

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 441 A

1st version kW : 191.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-gil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
 : (3.55...3.75)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-120-165-240-285  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

**BASIC SETTING**

1st speed 1/min: 600  
 -----  
 Contr.-rod trav.mm: 13.10...13.30  
 -----  
 Del.quantity cm3/ : 19.0...19.2  
 100H.: (18.7...19.5)  
 -----  
 Dispersion cm3/ : 0.5  
 -----  
 100H.: (0.9)  
 -----  
 2nd speed 1/min: 325.0  
 Contr.-rod trav. m: 5.4...5.6  
 Del.quantity cm3/ : 1.4...2.2  
 100H.: (1.1...2.5)  
 Dispersion cm3/ : 0.8  
 100H.: (1.2)

(B) Setting of injection pump with externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300  
 Sleeve travel mm: 2.00...2.20  
 2nd speed 1/min: 600  
 Sleeve travel mm: 5.90...6.10  
 3rd speed 1/min: 900  
 Sleeve travel mm: 6.60...6.80  
 4th speed 1/min: 1100  
 Sleeve travel mm: 7.00...7.40  
 5th speed 1/min: 1175  
 Sleeve travel mm: 9.30...10.00

**SLEEVE POSITION**

Control-lever position  
 Degree: -2  
 Speed 1/min: 600  
 Contr.-rod travelmm: 19.20...20.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

B11

Speed 1/min: 600  
 Charge press. hPa : 1100  
 Del.quantity cm3/ : 190.0...192.0  
 1000H.: (187.0...195.0)  
 Dispersion cm3/ : 5.0  
 1000H.: (9.0)

**HIGHEST RATED SPEED**

Setting point:  
 Speed 1/min : 600  
 Contr.-rod trav.mm: 20.0

Testing:  
 1st c-rod trav.mm : 11.40  
 Speed 1/min : 1095...1110  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1200...1230  
 4th speed 1/min : 1350  
 C-rod trav.mm : 0.00...1.50

**LOWEST RATED SPEED I**

Setting point w/out aux. spring  
 Speed 1/min : 325  
 Contr.-rod trav.mm: 5.5

Testing:  
 Speed 1/min : 100  
 C-rod trav.mm min : 6.90  
 Speed 1/min : 325  
 C-rod trav.mm : 5.40...5.60  
 C-rod trav.mm : 2.00  
 Speed 1/min : 340...380

**TORQUE CONTROL**

Dimension a mm : 0.90  
 2nd speed 1/min : 1050  
 C-rod trav.mm : 12.30...12.50  
 3rd speed 1/min : 700  
 C-rod trav.mm : 13.50...13.70

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
 Speed 1/min : 600  
 Pressure hPa : 700  
 Contr.-rod trav.mm: 13.10...13.30

**Measurement**

Speed 1/min : 600  
 1st pressure hPa : 350  
 C-rod trav.mm : 11.20...11.40  
 2nd pressure hPa : 550  
 C-rod trav.mm : 12.40...12.60  
 3rd pressure hPa : 780  
 C-rod trav.mm : 13.20...13.30  
 4th pressure hPa : 1100

C-rod trav.mm : 13.45...13.55

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1100

Speed 1/min : 1050

Del.quantity cm3/ : 184.0...187.0

1000H.: (181.0...190.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

Charge press. hPa : 1100

Speed 1/min : 700

Del.quantity cm3/ : 204.0...208.0

1000H.: (201.0...211.0)

Dispersion cm3/ : 8.00

1000H.: 12.00

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 129.0...131.0

1000H.: (126.0...134.0)

Dispersion cm3/ : 8.00

1000H.: (-)

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 190.0...210.0

1000H.: (186.0...214.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 L 2  
 Edition : 10.12.86  
 Superseded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 832  
 Injection pump  
 Pump designation : PE6P120A32OLS3815-11  
 EP type number : 0 411 826 755  
 Governor  
 Governor design. : RQ325/1050PA840  
 Governor no. : 0 421 801 374

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 441 A

1st version kW : 191.0  
 Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
                  : (3.55...3.75)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing<sup>0</sup>CS: 0-45-120-165-240-285  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 600  
-----  
Contr.-rod trav.mm: 13.10...13.30  
-----  
Del.quantity cm3/ : 19.0...19.2  
                  100H.: (18.7...19.5)  
-----  
Dispersion cm3/ : 0.5  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 325.0  
Contr.-rod trav. m: 5.4...5.6  
Del.quantity cm3/ : 1.4...2.2  
                  100H.: (1.1...2.5)  
Dispersion cm3/ : 0.8  
                  100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 2.00...2.20  
2nd speed 1/min: 600  
Sleeve travel mm: 5.90...6.10  
3rd speed 1/min: 900  
Sleeve travel mm: 6.60...6.80  
4th speed 1/min: 1100  
Sleeve travel mm: 7.00...7.40  
5th speed 1/min: 1175  
Sleeve travel mm: 9.50...10.00

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 600  
Contr.-rod travelmm: 19.20...20.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

B14

Speed 1/min: 600  
Charge press. hPa : 700  
Del.quantity cm3/ : 190.0...192.0  
                  1000H.: (187.0...195.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

## HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 11.40  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1200...1230  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.50

## LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 325  
Contr.-rod trav.mm: 5.5

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 6.90  
Speed 1/min : 325  
C-rod trav.mm : 5.40...5.60  
C-rod trav.mm : 2.00  
Speed 1/min : 340...380

## TORQUE CONTROL

Dimension a mm : 0.90  
2nd speed 1/min : 1050  
C-rod trav.mm : 12.30...12.50  
3rd speed 1/min : 700  
C-rod trav.mm : 13.50...13.70

compensator (LDA,ADA,ALDA)

## 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 700  
Contr.-rod trav.mm: 13.10...13.30

## Measurement

Speed 1/min : 600  
1st pressure hPa : 350  
C-rod trav.mm : 11.20...11.40  
2nd pressure hPa : 550  
C-rod trav.mm : 12.40...12.60  
3rd pressure hPa : 780  
C-rod trav.mm : 13.20...13.30  
4th pressure hPa : 1100



C-rod trav.mm : 13.45...13.55

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1100

Speed 1/min : 1050

Del.quantity cm3/ : 184.0...187.0

1000H.: (181.0...190.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

Charge press. hPa : 1100

Speed 1/min : 700

Del.quantity cm3/ : 204.0...208.0

1000H.: (201.0...211.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 129.0...131.0

1000H.: (126.0...134.0)

Dispersion cm3/ : 8.00

1000H.: (-)

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 190.0...210.0

1000H.: (186.0...214.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 D2  
Edition : 22.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 846 835  
  
Injection pump  
Pump designation : PE6P120A320RS3183-1  
EP type number : 0 411 826 758  
Governor  
Governor design. : RQ250/1000PA832  
Governor no. : 0 421 801 368

Customer-spec. information  
Customer : DAF

Engine : WS 259

1st version kW : 259.0  
Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values ----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 850  
-----  
Contr.-rod trav.mm: 12.60...12.70  
-----  
Del.quantity cm3/ : 20.0...20.2  
-----  
                  100H.: (19.7...20.5)  
-----  
Dispersion cm3/ : 0.5  
-----  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav. m: 7.2...7.4  
Del.quantity cm3/ : 1.6...2.2  
                  100H.: (1.3...2.5)  
Dispersion cm3/ : 0.8  
                  100H.: (1.2)

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 550  
Contr.-rod travelmm: 15.60...16.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 850  
Charge press. hPa : 1000  
Del.quantity cm3/ : 200.0...202.0  
                  1000H.: (197.0...205.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

#### HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 550  
Contr.-rod trav.mm: 16.0

Testing:  
1st c-rod trav.mm : 11.60  
Speed 1/min : 1035...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1125...1155  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 7.3

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.80  
Speed 1/min : 250  
C-rod trav.mm : 7.20...7.40  
C-rod trav.mm : 2.00  
Speed 1/min : 350...390

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 850  
C-rod trav.mm : 12.60...12.70  
2nd speed 1/min : 1000  
C-rod trav.mm : 12.50...12.70

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 1000  
Contr.-rod trav.mm: 12.60...12.70

#### Measurement

Speed 1/min : 600  
1st pressure hPa : -  
C-rod trav.mm : 10.60...10.80  
2nd pressure hPa : 510  
C-rod trav.mm : 12.10...12.20  
3rd pressure hPa : 360  
C-rod trav.mm : 11.00...11.20

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 600  
Del.quantity cm3/ : 144.0...146.0  
                  1000H.: (141.0...149.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 260.0...300.0  
                  1000H.: (256.0...304.0)

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 7.20...7.40  
Del.quantity cm3/ : 16.0...22.0  
                  1000H.: (13.0...25.0)

Dispersion    cm<sup>3</sup>/ : 8.00  
1000H.: (12.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 T  
 Edition : 09.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 838  
 Injection pump  
 Pump designation : PE6P110A32ORS3152  
 EP type number : 0 411 816 746  
 Governor  
 Governor design. : RQV250...1100PAS89  
 Governor no. : 0 421 813 307

Customer-spec. information  
 Customer : VOLVO-BM

Engine : TD102

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Calibrating nozzle-holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test inj. tubing : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 3.50...3.60  
 : (3.45...3.65)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.00...13.10

Del.quantity cm3/ : 17.5...17.7

100H.: (17.2...18.0)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.9...4.1

Del.quantity cm3/ : 1.5...1.9

100H.: (-)

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 350

Sleeve travel mm: 2.20...2.70

3rd speed 1/min: 450

Sleeve travel mm: 3.70...4.10

4th speed 1/min: 750

Sleeve travel mm: 6.40...6.60

5th speed 1/min: 1160

Sleeve travel mm: 8.10...8.30

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1180

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1000

Del.quantity cm3/ : 175.0...177.0

1000H.: (172.0...180.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

#### HIGHEST RATED SPEED

1st version

820

Control-lever  
position degrees: 59...67

#### Testing:

1st c-rod trav.mm : 12.00

Speed 1/min : 1160...1170

2nd c-rod trav.mm : 4.00

Speed 1/min : 1220...1250

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 5...13

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 5.40

Speed 1/min : 250

C-rod trav.mm : 3.90...4.10

#### CONSTANT REGULATION

Speed 1/min : 250...360

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 1000

Contr.-rod trav.mm: 13.00...13.10

#### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 11.50...11.60

2nd pressure hPa : 480

C-rod trav.mm : 12.80...12.90

3rd pressure hPa : 340

C-rod trav.mm : 11.80...12.00

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 152.0...154.0

1000H.: (149.0...157.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 160.0...190.0

1000H.: (156.0...194.0)

Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 3.90...4.10  
Del.quantity cm3/ : 15.0...19.0  
Dispersion cm3/ : 4.50  
1000H.: (7.50)

Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.

Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 E  
 Edition : 10.04.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 839  
 Injection pump  
 Pump designation : PE6P120A32ORS3183  
 EP type number : 0 411 826 754  
 Governor  
 Governor design. : RQV250...1000PA851  
 Governor no. : 0 421 813 604

Customer-spec. information  
 Customer : DAF

Engine : WS 225

1st version kW : 225.0  
 Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 850

Contr.-rod trav.mm: 13.10...13.20

Del.quantity cm3/ : 21.9...22.1

100H.: (21.6...22.4)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 6.8...7.0

Del.quantity cm3/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.30...1.70

2nd speed 1/min: 400

Sleeve travel mm: 3.20...3.60

3rd speed 1/min: 800

Sleeve travel mm: 5.80...6.20

4th speed 1/min: 1000

Sleeve travel mm: 7.90...8.10

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 850

Charge press. hPa : 1000

Del.quantity cm3/ : 219.0...221.0

1000H.: (216.0...224.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)



# HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 51...59

## Testing:

1st c-rod trav.mm : 12.10  
Speed 1/min : 1040...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1130...1160  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

# LOWEST RATED SPEED I

Control-lever

position degrees: 15...23

## Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.40  
Speed 1/min : 250  
C-rod trav.mm : 6.80...7.00

# CONSTANT REGULATION

Speed 1/min : 275...385

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 600  
Pressure hPa : 1000  
Contr.-rod trav.mm: 13.10...13.20

## Measurement

Speed 1/min : 600

1st pressure hPa : -  
C-rod trav.mm : 10.20...10.40  
2nd pressure hPa : 650  
C-rod trav.mm : 12.40...12.50  
3rd pressure hPa : 390  
C-rod trav.mm : 10.60...10.90

# SWITCH-OVER POINT

Speed 1/min : 200 (220)

# FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 600  
Del.quantity cm3/ : 144.0...146.0  
1000H.: (141.0...149.0)

# STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 260.0...300.0  
1000H.: (256.0...304.0)

# LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 6.80...7.00  
Del.quantity cm3/ : 14.0...20.0  
1000H.: (11.0...23.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 E1  
Edition : 15.05.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 401 846 839

Injection pump  
Pump designation : PE6P120A32ORS3183-1Y  
EP type number : 0 411 826 765  
Governor  
Governor design. : RQV250...1000PA851  
Governor no. : 0 421 813 604

Customer-spec. information  
Customer : DAF

Engine : WS 282

1st version kW : 282.0  
Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
Wall thickness  
Length mm : 6.00x1.50x1000

Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 850  
-----  
Contr.-rod trav.mm: 13.10...13.20  
-----  
Del.quantity cm3/ : 21.9...22.1  
-----  
                  100H.: (21.6...22.4)  
-----  
Dispersion cm3/ : 0.5  
-----  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav. m: 6.8...7.0  
Del.quantity cm3/ : 1.4...2.0  
                  100H.: (1.1...2.3)  
Dispersion cm3/ : 0.8  
                  100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 250  
Sleeve travel mm: 1.30...1.70  
2nd speed 1/min: 400  
Sleeve travel mm: 3.20...3.60  
3rd speed 1/min: 800  
Sleeve travel mm: 5.80...6.20  
4th speed 1/min: 1000  
Sleeve travel mm: 7.90...8.10

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1040  
Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 850  
Charge press. hPa : 1000  
Del.quantity cm3/ : 219.0...221.0  
                  1000H.: (216.0...224.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 51...59

#### Testing:

1st c-rod trav.mm : 12.10  
Speed 1/min : 1040...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1130...1160  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 15...23

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.40  
Speed 1/min : 250  
C-rod trav.mm : 6.80...7.00

#### CONSTANT REGULATION

Speed 1/min : 275...385

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 1000  
Contr.-rod trav.mm: 13.10...13.20

#### Measurement

Speed 1/min : 600  
1st pressure hPa : -  
C-rod trav.mm : 10.20...10.40  
2nd pressure hPa : 650  
C-rod trav.mm : 12.40...12.50  
3rd pressure hPa : 390  
C-rod trav.mm : 10.60...10.90

#### SWITCH-OVER POINT

Speed 1/min : 200 (220)

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 600  
Del.quantity cm3/ : 144.0...146.0  
                  1000H.: (141.0...149.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 260.0...300.0  
1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 6.80...7.00  
Del.quantity cm3/ : 14.0...20.0  
1000H.: (11.0...23.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 E2  
 Edition : 13.05.87  
 Superseded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 840  
 Injection pump  
 Pump designation : PE6P120A32ORS3183-1Z  
 EP type number : 0 411 826 760  
 Governor  
 Governor design. : RQV250...1000PA851-1  
 Governor no. : 0 421 813 605

Customer-spec. information  
 Customer : DAF

Engine : WS 225

1st version kW : 225.0  
 Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 850  
-----  
Contr.-rod trav.mm: 11.30...11.40  
-----  
Del.quantity cm3/ : 18.1...18.3  
-----  
100H.: (17.8...18.6)  
-----  
Dispersion cm3/ : 0.5  
-----  
100H.: (0.9)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav. m: 6.5...6.7  
Del.quantity cm3/ : 1.4...2.0  
100H.: (1.1...2.3)  
Dispersion cm3/ : 0.8  
100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 250  
Sleeve travel mm: 1.30...1.70  
2nd speed 1/min: 400  
Sleeve travel mm: 3.20...3.60  
3rd speed 1/min: 800  
Sleeve travel mm: 5.80...6.20  
4th speed 1/min: 1000  
Sleeve travel mm: 7.90...8.10

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1040  
Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 850  
Charge press. hPa : 1000  
Del.quantity cm3/ : 181.0...183.0  
1000H.: (178.0...186.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...58

#### Testing:

1st c-rod trav.mm : 10.30  
Speed 1/min : 1040...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1120...1150  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 15...23

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.10  
Speed 1/min : 250  
C-rod trav.mm : 6.50...6.70

#### CONSTANT REGULATION

Speed 1/min : 275...385  
compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 1000  
Contr.-rod trav.mm: 11.30...11.40

#### Measurement

Speed 1/min : 600  
1st pressure hPa : -  
C-rod trav.mm : 10.10...10.30  
2nd pressure hPa : 410  
C-rod trav.mm : 11.00...11.10  
3rd pressure hPa : 340  
C-rod trav.mm : 10.50...10.70

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 600  
Del.quantity cm3/ : 144.0...146.0  
1000H.: (141.0...149.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 260.0...300.0  
1000H.: (256.0...304.0)

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 6.50...6.70  
Del.quantity cm3/ : 14.0...20.0  
1000H.: (11.0...23.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : UNI 13,8 C  
Edition : 30.03.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 401 846 845

Injection pump  
Pump designation : PE6P120A72ORS3192  
EP type number : 0 411 826 761  
Governor  
Governor design. : RQV300...900PA857  
Governor no. : 0 421 813 613

Customer-spec. information  
Customer : IVECO-UNIC

Engine : 8210.42.101-115

1st version kW : 265.0  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27



Prestroke mm : 3.40...3.50  
                  : (3.35...3.55)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 13.50...13.60

Del.quantity cm3/ : 25.4...25.6

100H.: (25.1...25.9)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 4.3...4.5

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.4)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 0.70...0.90

2nd speed 1/min: 550

Sleeve travel mm: 4.00...4.60

3rd speed 1/min: 800

Sleeve travel mm: 6.60...6.90

4th speed 1/min: 900

Sleeve travel mm: 7.70...7.90

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 965

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Charge press. hPa : 900

Del.quantity cm3/ : 254.0...256.0

1000H.: (251.0...259.0)

Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 57...65

Testing:

1st c-rod trav.mm : 12.50

Speed 1/min : 940...950

2nd c-rod trav.mm : 4.00

Speed 1/min : 1055...1085

4th speed 1/min : 1200

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 4...12

Testing:

Speed 1/min : 100

C-rod trav.mm min : 5.90

Speed 1/min : 300

C-rod trav.mm : 4.30...4.50

#### CONSTANT REGULATION

Speed 1/min : 370...490

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 13.50...13.60

#### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.40...9.60

2nd pressure hPa : 590

C-rod trav.mm : 12.60...12.70

3rd pressure hPa : 390

C-rod trav.mm : 10.40...10.80

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 500

Del.quantity cm3/ : 249.0...255.0

1000H.: (246.0...258.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 125.0...127.0

1000H.: (122.0...130.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...260.0  
1000H.: (236.0...264.0)

## LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 4.30...4.50  
Del.quantity cm3/ : 15.0...21.0  
1000H.: (12.0...24.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

On activation of the starting solenoid,  
the start position must be reached.



Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

#### Testing:

1st c-rod trav.mm : 11.30

Speed 1/min : 940...950

2nd c-rod trav.mm : 4.00

Speed 1/min : 1045...1075

4th speed 1/min : 1200

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 3...11

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 5.50

Speed 1/min : 300

C-rod trav.mm : 3.90...4.10

C-rod trav.mm : 2.00

Speed 1/min : 345...405

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 12.30...12.40

#### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 8.90...9.10

2nd pressure hPa : 520

C-rod trav.mm : 11.50...11.60

3rd pressure hPa : 370

C-rod trav.mm : 9.60...9.80

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 500

Del.quantity cm3/ : 227.0...233.0

1000H.: (224.0...236.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 127.0...129.0

1000H.: (124.0...132.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 250.0...270.0

1000H.: (246.0...274.0)

#### LOW IDLE

Speed 1/min : 300

Contr.-rod trav.mm: 3.90...4.10

Del.quantity cm3/ : 17.0...23.0

1000H.: (14.0...26.0)

Dispersion cm3/ : 8.00

1000H.: (12.00)

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 U  
Edition : 12.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 850  
Injection pump  
Pump designation : PE6P110A32ORS3197  
EP type number : 0 411 816 752  
Governor  
Governor design. : RQV300...1100PA232-2  
Governor no. : 0 421 813 639

Customer-spec. information  
Customer : VOLVO-BM

Engine : TD102

1st version kW : 196.0  
Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
: (3.45...3.65)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.80...12.90

Del.quantity cm3/ : 14.7...14.9

100H.: (14.4...15.2)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 300.0

Del.quantity cm3/ : 1.6...2.0

100H.: (1.3...2.2)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.40...1.60

2nd speed 1/min: 350

Sleeve travel mm: 1.70...2.30

3rd speed 1/min: 700

Sleeve travel mm: 4.40...5.00

4th speed 1/min: 1165

Sleeve travel mm: 8.70...8.90

5th speed 1/min: 1255

Sleeve travel mm: 9.60...10.00

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 147.0...149.0

1000H.: (144.0...152.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

1- 5- 3- 6- 2- 4

0-60-120-180-240-300  
0.50 (0.75)

1

700

12.80...12.90

14.7...14.9

(14.4...15.2)

0.4

(0.7)

300.0

1.6...2.0

(1.3...2.2)

0.3

(0.6)

ection pump with  
ted governor

300

1.40...1.60

350

1.70...2.30

700

4.40...5.00

1165

8.70...8.90

1255

9.60...10.00

ion

-1

1150

15.20...17.80

FULL-LOAD STOP

700

900

147.0...149.0

(144.0...152.0)

4.00

(7.50)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 104...112

## Testing:

1st c-rod trav.mm : 11.80

Speed 1/min : 1160...1170

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1400

C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever

position degrees: 69...77

## Testing:

Speed 1/min : 100

C-rod trav.mm min : ?

Speed 1/min : 300

C-rod trav.mm : ?

## CONSTANT REGULATION

Speed 1/min : ?

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 12.80...12.90

## Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 11.30...11.50

2nd pressure hPa : 300

C-rod trav.mm : 12.60...12.70

3rd pressure hPa : 150

C-rod trav.mm : 11.70...11.90

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 1000

Del.quantity cm3/ : 142.0...146.0

1000H.: (139.0...149.0)

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 118.5...121.5

1000H.: (116.0...124.0)

## STARTING FUEL DELIVERY

C08

Speed 1/min : 100

Del.quantity cm3/ : 150.0...170.0

1000H.: (146.0...174.0)

## LOW IDLE

Speed 1/min : 300

Del.quantity cm3/ : 16.0...20.0

1000H.: (13.5...22.5)

Dispersion cm3/ : 3.00

1000H.: (6.00)

Remarks:

APPLICATION

Loading machine

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 V  
 Edition : 12.06.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 851  
 Injection pump  
 Pump designation : PE6P110A320RS3080  
 EP type number : 0 411 816 722  
 Governor  
 Governor design. : RQV250...10SOPA657  
 -17  
 Governor no. : 0 421 813 652

Customer-spec. information  
 Customer : VOLVO

Engine : TD102FAQ

1st version kW : 221.0  
 Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm3/ : 18.5...18.7

100H.: (18.2...19.0)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100H.: (1.2...2.1)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 350

Sleeve travel mm: 2.20...2.80

3rd speed 1/min: 700

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 1085

Sleeve travel mm: 7.80...8.00

5th speed 1/min: 1170

Sleeve travel mm: 9.20...9.60

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1120

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 185.0...187.0

1000H.: (182.0...190.0)

Dispersion cm3/ : 4.00  
1000H.: (7.50)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

Testing:

1st c-rod trav.mm : 12.70

Speed 1/min : 1080...1090

2nd c-rod trav.mm : 4.00

Speed 1/min : 1155...1185

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 4...12

Testing:

Speed 1/min : 100

C-rod trav.mm min : 5.30

Speed 1/min : 250

C-rod trav.mm : 3.80...4.00

#### CONSTANT REGULATION

Speed 1/min : 250...370

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 13.70...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.80...11.00

2nd pressure hPa : 520

C-rod trav.mm : 13.50...13.60

3rd pressure hPa : 100

C-rod trav.mm : 11.10...11.30

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 136.0...139.0

1000H.: (133.5...141.5)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

C10

Del.quantity cm3/ : 160.0...190.0  
1000H.: (156.0...194.0)

Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 3.80...4.00

Del.quantity cm3/ : 15.0...19.0

1000H.: (12.5...21.5)

Dispersion cm3/ : 3.00

1000H.: (6.00)

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90 mm



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12, OK12  
 Edition : 12.06.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 854  
 Injection pump  
 Pump designation : PE6P120A32ORS3118-1  
 EP type number : 0 411 826 739  
 Governor  
 Governor design. : RQV250...850PA657-20  
 Governor no. : 0 421 813 650

Customer-spec. information  
 Customer : VOLVO

Engine : TD122FCQ

1st version kW : 287.0  
 Speed 1/min: 1700

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Lubricating oil : 8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70  
 : (2.55...2.75)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.30...12.40

Del.quantity cm3/ : 21.4...21.6  
 100H.: (21.1...21.9)

Dispersion cm3/ : 0.5  
 100H.: (0.9)

2nd speed 1/min: 250.0  
 Contr.-rod trav. m: 3.3...3.5  
 Del.quantity cm3/ : 1.8...2.3  
 100H.: (1.5...2.5)  
 Dispersion cm3/ : 0.5  
 100H.: (0.7)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250  
 Sleeve travel mm: 1.00...1.40  
 2nd speed 1/min: 350  
 Sleeve travel mm: 2.20...2.80  
 3rd speed 1/min: 700  
 Sleeve travel mm: 6.40...6.60  
 4th speed 1/min: 885  
 Sleeve travel mm: 7.60...7.80  
 5th speed 1/min: 955  
 Sleeve travel mm: 8.80...9.20

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 930  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 700  
 Charge press. hPa : 900

Del.quantity cm3/ : 214.5...216.5  
1000H.: (211.5...219.5)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 57...65

Testing:  
1st c-rod trav.mm : 11.30  
Speed 1/min : 880...890  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 990...970  
4th speed 1/min : 1100  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 3..11

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 4.80  
Speed 1/min : 250  
C-rod trav.mm : 3.30...3.50

#### CONSTANT REGULATION

Speed 1/min : 250...350

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 12.30...12.40

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.20...9.40  
2nd pressure hPa : 80  
C-rod trav.mm : 9.60...9.70

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 700  
Del.quantity cm3/ : 154.0...156.0  
1000H.: (151.0...159.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 240.0...280.0  
1000H.: (236.0...284.0)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 3.30...3.50  
Del.quantity cm3/ : 18.0...23.0  
1000H.: (15.5...25.5)  
Dispersion cm3/ : 5.00  
Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 14,5 A  
 Edition : 30.03.87  
 Superceeded : 11.85  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 848 082  
 Injection pump  
 Pump designation : PE8P110A52OLS851  
 EP type number : 0 411 818 046  
 Governor  
 Governor design. : RQ250/1150PA688  
 Governor no. : 0 421 801 231

Customer-spec. information  
 Customer : MAN

Engine : D2848T

1st version kW : 245.0  
 Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 8- 7- 2- 6- 3- 5-  
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 10.80...10.90

Del.quantity cm3/ : 14.3...14.5

100H.: (14.0...14.7)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm3/ : 1.8...2.4

100H.: (1.5...2.6)

Dispersion cm3/ : 0.4

100H.: (0.7)

## SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Contr.-rod travelmm: 19.20...20.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 1000

Del.quantity cm3/ : 143.0...145.0

1000H.: (140.5...147.5)

Dispersion cm3/ : 4.00

1000H.: (7.50)

## HIGHEST RATED SPEED

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.80

Speed 1/min : 1195...1210

2nd c-rod trav.mm : 4.00

Speed 1/min : 1280...1310

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1450  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 5.0

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.50  
Speed 1/min : 250  
C-rod trav.mm : 4.90...5.10  
C-rod trav.mm : 2.00  
Speed 1/min : 310...350

#### TORQUE CONTROL

Dimension a mm : -  
Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 10.80...10.90  
2nd speed 1/min : 700  
C-rod trav.mm : 10.80...11.00

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 1000  
Contr.-rod trav.mm: 10.80...10.90

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 9.60...9.70  
2nd pressure hPa : 290  
C-rod trav.mm : 10.50...10.60  
3rd pressure hPa : 230  
C-rod trav.mm : 10.00...10.20

#### SWITCH-OVER POINT

Speed 1/min : 170 (190)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 1000  
Speed 1/min : 700  
Del.quantity cm3/ : 137.0...141.0  
1000H.: (134.0...144.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 108.0...110.0  
1000H.: (105.5...112.5)  
Dispersion cm3/ : -  
1000H.: (7.50)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 190.0...210.0  
1000H.: (186.0...214.0)

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 4.90...5.10  
Del.quantity cm3/ : 18.0...24.0  
1000H.: (15.5...26.5)  
Dispersion cm3/ : 4.50  
1000H.: (7.50)

Remarks:

: MAN-NR. 2-7553

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 E  
Edition : 12.12.86  
Superceeded : 6.85  
Calibrating oil : ISO-4113

Combination no. : 0 401 848 708

Injection pump  
Pump designation : PE8P110A32OLS3802  
EP type number : 0 411 818 705  
Governor  
Governor design. : RQ300/1150PA187-3  
Governor no. : 0 421 801 133

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 206.0  
Speed 1/min: 2300  
2nd version kW : 206  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
                          270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

#### BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm3/ : 11.3...11.5

100H.: (11.0...11.7)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.9...8.1

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

1st speed 1/min: 1150

Contr.-rod trav.mm: 12.3...12.4

Del.quantity cm3/ : 12.7...12.9

100H.: (-)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300

Contr.-rod trav.mm: 8.00...8.10

Del.quantity cm3/ : 1.5...2.1

100H.: (-)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 650

Contr.-rod travelmm: 13.00...14.00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Del.quantity cm3/ : 113.0...115.0

1000H.: (110.5...117.5)

Dispersion cm3/ : 4.00  
1000H.: (8.00)

2nd version

Speed 1/min: 1150

Del.quantity cm3/ : 127.0...129.0

1000H.: (124.0...132.0)

Dispersion cm3/ : 4.0

1000H.: (8.0)

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 13.5

Testing:

1st c-rod trav.mm : 10.70

Speed 1/min : 1195...1210

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.50

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 13.5

Testing:

1st c-rod trav.mm : 11.30

Speed 1/min : 1195...1210

2nd c-rod trav.mm : 4.00

Speed 1/min : 1235...1265

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 8.1

Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.20

Speed 1/min : 300

C-rod trav.mm : 8.00...8.20

C-rod trav.mm : 2.00

Speed 1/min : 420...460

Speed 1/min : 550

C-rod trav.mm max : 1.80

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1150

Del.quantity cm3/ : 132.0...136.0

1000H.: (129.0...139.0)

Dispersion cm3/ : 7.00

1000H.: (10.0)

Speed 1/min : 600

Del.quantity cm3/ : 118.0...122.0

1000H.: (115.0...125.0)

Dispersion    cm3/ : 8.0  
              1000H.: (11.0)

STARTING FUEL DELIVERY

Speed            1/min : 100  
Del.quantity cm3/ : 130.0...150.0  
                  1000H.: (126.0...154.0)

Version 1: Without return-flow  
restriction

Version 2: With return-flow restriction

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 E 4  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 848 708  
  
Injection pump  
Pump designation : PE8P110A32OLS3802-10  
EP type number : 0 411 818 710  
Governor  
Governor design. : RQ300/1150PA187-3  
Governor no. : 0 421 801 133

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 206.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 750

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm3/ : 11.3...11.5

100H.: (11.0...11.7)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.9...8.1

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 2.10...2.30

2nd speed 1/min: 650

Sleeve travel mm: 6.90...7.10

3rd speed 1/min: 1200

Sleeve travel mm: 7.30...7.70

4th speed 1/min: 1250

Sleeve travel mm: 9.30...10.30

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 650

Contr.-rod travelmm: 13.00...14.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 750

Del.quantity cm3/ : 113.0...115.0

1000H.: (110.5...117.5)



Dispersion cm3/ : 4.00  
1000H.: (7.00)

#### HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 650  
Contr.-rod trav.mm: 13.5

Testing:  
1st c-rod trav.mm : 10.70  
Speed 1/min : 1195...1210  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1240...1270  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 8.1

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 10.20  
Speed 1/min : 300  
C-rod trav.mm : 8.00...8.20  
C-rod trav.mm : 2.00  
Speed 1/min : 420...460  
Speed 1/min : 550  
C-rod trav.mm max : 1.80

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1150  
Del.quantity cm3/ : 132.0...136.0  
1000H.: (129.0...139.0)  
Dispersion cm3/ : 7.00  
1000H.: (10.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 130.0...150.0  
1000H.: (126.0...154.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 N 3  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 848 737  
  
Injection pump  
Pump designation : PE8P110A32OLS3802-10  
EP type number : 0 411 818 710  
Governor  
Governor design. : RQ750PA374R  
Governor no. : 0 421 801 074

Customer-spec. information  
Customer : DB

Engine : OAIMLER-BENZ

1st version kW : 154.0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

C20

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm3/ : 14.2...14.4

100H.: (13.9...14.7)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.3...8.4

Del.quantity cm3/ : 1.3...1.9

100H.: (1.0...2.1)

Dispersion cm3/ : 0.4

100H.: (0.7)

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 142.0...144.0

1000H.: (139.0...147.0)

Dispersion cm3/ : 4.00

1000H.: (8.00)

## HIGHEST RATED SPEED

Testing:

1st c-rod trav.mm : 12.90

Speed 1/min : 750...755

2nd c-rod trav.mm : 6.10

Speed 1/min : 783...796

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 140.0...160.0

1000H.: (136.0...164.0)

Remarks:  
APPLICATION  
Generator

Note inst. in remarks column

Remarks:  
APPLICATION  
Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 N 5  
 Edition : 13.05.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 848 739  
 Injection pump  
 Pump designation : PE8P110A320LS3802-10  
 EP type number : 0 411 818 710  
 Governor  
 Governor design. : RQ1050PA310  
 Governor no. : 0 421 801 108

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 422

1st version kW : 198.0  
 Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 8- 7- 2- 6- 3- 5-  
 4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 1000  
 -----  
 Contr.-rod trav.mm: 14.30...14.40  
 -----  
 Del.quantity cm3/ : 15.9...16.1  
 -----  
 100H.: (15.6...16.4)  
 -----  
 Dispersion cm3/ : 0.4  
 -----  
 100H.: (0.8)  
 -----

2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 8.2...8.4  
 Del.quantity cm3/ : 1.4...2.0  
 100H.: (1.1...2.2)  
 Dispersion cm3/ : 0.4  
 100H.: (0.7)

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1000  
 Del.quantity cm3/ : 159.0...161.0  
 1000H.: (156.0...164.0)  
 Dispersion cm3/ : 4.00  
 1000H.: (8.00)

## HIGHEST RATED SPEED

Testing:  
 1st c-rod trav.mm : 13.30  
 Speed 1/min : 1050...1055  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1108...1118

## STARTING FUEL DELIVERY

Speed 1/min : 100  
 Del.quantity cm3/ : 140.0...160.0  
 1000H.: (136.0...164.0)

Remarks:  
APPLICATION  
Generator





Del. quantity cm3/ : 131.0...133.0  
1000H.: (128.5...135.5)  
Dispersion cm3/ : 4.00  
1000H.: (8.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 10.50  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1280...1310  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 10...18

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.70  
Speed 1/min : 350  
C-rod trav.mm : 7.40...7.60

#### CONSTANT REGULATION

Speed 1/min : 385...495

#### SWITCH-OVER POINT

Speed 1/min : 270 (290)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del. quantity cm3/ : 109.0...113.0  
1000H.: (106.0...116.0)  
Dispersion cm3/ : 6.00  
1000H.: (9.00)  
Speed 1/min : 1150  
Del. quantity cm3/ : 84.0...87.0 \*  
1000H.: (81.0...90.0)  
Dispersion cm3/ : 6.00  
1000H.: (9.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 140.0...160.0  
1000H.: (136.0...164.0)

Remarks:

\* = Set at reduced-delivery stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 A 4  
Edition : 13.05.87  
Superceeded : 5.11.86  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 848 755  
  
Injection pump  
Pump designation : PE8P110A320LS3802-10  
EP type number : 0 411 818 710  
Governor  
Governor design. : RQ300/1150PA437-3  
Governor no. : 0 421 801 230

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 184.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
                          270-315  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 8

#### BASIC SETTING

1st speed       1/mi: 750  
-----  
Contr.-rod trav.mm: 11.30...11.40  
-----  
2nd speed       1/min: 300.0  
Contr.-rod trav. m: 8.5...8.7  
Del.quantity cm3/ : 1.4...2.0  
                  100H.: (1.1...2.2)  
Dispersion     cm3/ : 0.4  
                  100H.: (0.7)

#### SLEEVE POSITION

Control-lever position  
                  Degree: -1  
Speed           1/min: 650  
Contr.-rod travelmm: 13.20...14.00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed           1/min: 750

#### HIGHEST RATED SPEED

Setting point:  
Speed           1/min : 650  
Contr.-rod trav.mm: 13.6

Testing:  
1st c-rod trav.mm : 10.00  
  Speed       1/min : 1195...1210  
2nd c-rod trav.mm : 4.00  
  Speed       1/min : 1255...1285  
4th speed    1/min : 1350  
  C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed           1/min : 300  
Contr.-rod trav.mm: 7.1

Testing:  
Speed           1/min : 100  
C-rod trav.mm min : 8.50

Speed           1/min : 300  
C-rod trav.mm : 7.00...7.20  
C-rod trav.mm : 2.00  
Speed           1/min : 400...440

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed   1/min : 1150  
  C-rod trav.mm : 11.00...11.10  
2nd speed   1/min : 600  
  C-rod trav.mm : 11.20...11.40

#### FUEL-DELIVERY CHARACTERISTICS

Speed           1/min : 600  
Del.quantity cm3/ : 92.0...96.0  
                  1000H.: (89.0...99.0)  
Dispersion     cm3/ : 6.00  
                  1000H.: (9.0)

#### STARTING FUEL DELIVERY

Speed           1/min : 100  
Del.quantity cm3/ : 130.0...150.0  
                  1000H.: (126.0...154.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 17,2 D  
 Edition : 22.05.87  
 Superceeded : 22.10.86  
 Calibrating oil : ISO-4113

Combination no. : 0 401 848 757

Injection pump  
 Pump designation : PE8P120A920/5LS3827  
 EP type number : 0 411 828 712  
 Governor  
 Governor design. : RQV300...900PA475-1  
 Governer no. : 0 421 813 420

Customer-spec. information  
 Customer : IVECO-FIAT

Engine : 8280.22.201

1st version kW : 309.0  
 Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 8- 4- 3- 6- 5-  
 7- 2

SD ang. spacing°CS: 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 21.4...21.6

100H.: (21.1...21.9)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/ : 1.7...2.3

100H.: (1.4...2.6)

Dispersion cm3/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.40...1.80

2nd speed 1/min: 450

Sleeve travel mm: 3.60...4.00

3rd speed 1/min: 750

Sleeve travel mm: 6.10...6.50

4th speed 1/min: 900

Sleeve travel mm: 7.70...7.90

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 960

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Charge press. hPa : 900

Del.quantity cm3/ : 214.0...216.0  
1000H.: (211.0...219.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 11.60

Speed 1/min : 940...950

2nd c-rod trav.mm : 4.00

Speed 1/min : 1050...1080

4th speed 1/min : 1200

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 7...15

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.40

Speed 1/min : 300

C-rod trav.mm : 5.00...5.20

#### CONSTANT REGULATION

Speed 1/min : 310...415

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.00...9.30

2nd pressure hPa : 440

C-rod trav.mm : 11.60...11.70

3rd pressure hPa : 340

C-rod trav.mm : 9.60...10.00

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 550

Del.quantity cm3/ : 229.0...237.0

1000H.: (226.0...240.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 133.0...135.0  
1000H.: (130.0...138.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 170.0...200.0

1000H.: (166.0...204.0)

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 F 1  
Edition : 09.03.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113

Combination no. : 0 401 848 759

Injection pump  
Pump designation : PE8P120A32OLS3811-10  
EP type number : 0 411 828 714  
Governor  
Governor design. : RQ300/1150PA556-1  
Governor no. : 0 421 801 290

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 243.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

# START OF DELIVERY

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 10.40...10.50

Del.quantity cm3/ : 16.0...16.2

100H.: (15.7...16.5)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.1...5.3

Del.quantity cm3/ : 1.4...2.2  
100H.: (1.1...2.5)

Dispersion cm3/ : 0.8  
100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 3.30...3.50

2nd speed 1/min: 650  
Sleeve travel mm: 6.90...7.10

3rd speed 1/min: 1200  
Sleeve travel mm: 7.20...7.60

4th speed 1/min: 1250  
Sleeve travel mm: 9.00...9.50

## SLEEVE POSITION

Control-lever position  
Degree: 108

Speed 1/min: 600  
Contr.-rod travelmm: 14.60...16.40

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1150

Del.quantity cm3/ : 160.0...162.0  
1000H.: (157.0...165.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 600  
Contr.-rod trav.mm: 15.5

Testing:

1st c-rod trav.mm : 9.40  
Speed 1/min : 1195...1210  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1245...1275  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 5.2

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.70  
Speed 1/min : 300  
C-rod trav.mm : 5.10...5.30  
C-rod trav.mm : 2.00  
Speed 1/min : 360...400

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm3/ : 152.0...158.0  
1000H.: (149.0...161.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...160.0  
1000H.: (136.0...164.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 Q 8  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 401 848 760  
Injection pump  
Pump designation : PE8P120A320LS3807-10  
EP type number : 0 411 828 713  
Governor  
Governor design. : RQ300/1150PA546-10  
Governor no. : 0 421 801 376

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 422 A

1st version kW : 243.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 10.70...10.80

Del.quantity cm3/ : 15.9...16.1  
                                  100H.: (15.6...16.4)

Dispersion cm3/ : 0.5  
                                  100H.: (0.9)

2nd speed 1/min: 300.0  
Contr.-rod trav. m: 5.3...5.5  
Del.quantity cm3/ : 1.6...2.2  
                                  100H.: (1.3...2.5)  
Dispersion cm3/ : 0.8  
                                  100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.60...1.80  
2nd speed 1/min: 650  
Sleeve travel mm: 5.80...6.20  
3rd speed 1/min: 1150  
Sleeve travel mm: 6.20...6.30  
4th speed 1/min: 1200  
Sleeve travel mm: 6.50...6.80  
5th speed 1/min: 1270  
Sleeve travel mm: 8.50...9.00

## SLEEVE POSITION

Control-lever position  
Degree: 108  
Speed 1/min: 600  
Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP



1st version

Speed 1/min: 1150  
Charge press. hPa : 700  
Del. quantity cm3/ : 159.0...161.0  
1000H.: (156.0...164.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.70  
Speed 1/min : 1195...1210  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1255...1285  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 5.4

Testing:

Speed 1/min : 200  
C-rod trav.mm min : 7.10  
Speed 1/min : 300  
C-rod trav.mm : 5.30...5.50  
C-rod trav.mm : 2.00  
Speed 1/min : 370...420

#### TORQUE CONTROL

Dimension a mm : 0.20  
Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 10.70...10.80  
2nd speed 1/min : 750  
C-rod trav.mm : 11.00...11.20

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 10.00...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : 450  
C-rod trav.mm : 10.10...10.20  
2nd pressure hPa : 500  
C-rod trav.mm : 10.50...10.70

D08

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700  
Speed 1/min : 750  
Del. quantity cm3/ : 173.5...175.5  
1000H.: (170.5...178.5)  
Dispersion cm3/ : 8.00  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 138.0...140.0  
1000H.: (135.0...143.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 140.0...160.0  
1000H.: (136.0...164.0)

Remarks:

## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 Q 7  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 848 761  
  
Injection pump  
Pump designation : PE8P120A32OLS3807-10  
EP type number : 0 411 828 713  
Governor  
Governor design. : RQ300/1150PA546-9  
Governor no. : 0 421 801 375

### Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM422 LA

1st version kW : 276.0  
Speed 1/min: 2300

### TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

# START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 1150  
-----  
Contr.-rod trav.mm: 11.50...11.60  
-----  
Del.quantity cm3/ : 17.5...17.7  
                  100H.: (17.2...18.0)  
-----  
Dispersion cm3/ : 0.5  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 5.0...5.2  
Del.quantity cm3/ : 1.2...2.0  
                  100H.: (0.9...2.3)  
Dispersion cm3/ : 0.8  
                  100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.60...1.80  
2nd speed 1/min: 600  
Sleeve travel mm: 5.90...6.10  
3rd speed 1/min: 1150  
Sleeve travel mm: 6.20...6.30  
4th speed 1/min: 1210  
Sleeve travel mm: 6.50...6.80  
5th speed 1/min: 1270  
Sleeve travel mm: 8.50...9.00

## SLEEVE POSITION

Control-lever position  
Degree: 108  
Speed 1/min: 600  
Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

D10

## 1st version

Speed 1/min: 1150  
Charge press. hPa : 700  
Del.quantity cm3/ : 175.0...177.0  
                  1000H.: (172.0...180.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

## HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 10.50  
Speed 1/min : 1195...1210  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1255...1285  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.50

## LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 5.1

Testing:  
Speed 1/min : 200  
C-rod trav.mm min : 7.10  
Speed 1/min : 300  
C-rod trav.mm : 5.00...5.20  
C-rod trav.mm : 2.00  
Speed 1/min : 365...415

## TORQUE CONTROL

Dimension a mm : 0.20  
Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 11.50...11.60  
2nd speed 1/min : 750  
C-rod trav.mm : 11.80...12.00

compensator (LDA,ADA,ALDA)

## 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 10.20...10.40

## Measurement

Speed 1/min : 500  
1st pressure hPa : 410  
C-rod trav.mm : 10.50...10.60  
2nd pressure hPa : 490  
C-rod trav.mm : 11.10...11.40

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 750

Del. quantity cm3/ : 187.0...190.0

1000H.: (184.0...193.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

Charge press. hPa : -

Speed 1/min : 500

Del. quantity cm3/ : 137.0...139.0

1000H.: (134.0...142.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

STARTING FUEL DELIVERY

Speed 1/min : 100

Del. quantity cm3/ : 140.0...160.0

1000H.: (136.0...164.0)

Remarks:

## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 K 8  
Edition : 30.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 848 762  
  
Injection pump  
Pump designation : PE8P120A320LS3807-10  
EP type number : 0 411 828 713  
Governor  
Governor design. : RQV300...1150PAS45-7  
Governor no. : 0 421 813 595

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 422 A

1st version kW : 243.0  
Speed 1/min: 2300

### TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                   : (3.95...4.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 8- 7- 2- 6- 3- 5-  
                   4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
                           270-315  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

**BASIC SETTING**

1st speed 1/mi: 1150  
 -----  
 Contr.-rod trav.mm: 10.70...10.80  
 -----  
 Del.quantity cm3/ : 15.9...16.1  
 -----  
                   100H.: (15.6...16.4)  
 -----  
 Dispersion cm3/ : 0.5  
 -----  
                   100H.: (0.9)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 5.0...5.2  
 Del.quantity cm3/ : 1.2...1.8  
                   100H.: (0.9...2.1)  
 Dispersion cm3/ : 0.8  
                   100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor**SLEEVE TRAVELS**

1st speed 1/min: 300  
   Sleeve travel mm: 1.60...1.80  
 2nd speed 1/min: 800  
   Sleeve travel mm: 6.00...6.20  
 3rd speed 1/min: 1200  
   Sleeve travel mm: 8.00...8.20  
 4th speed 1/min: 1300  
   Sleeve travel mm: 9.00...9.50

**SLEEVE POSITION**

Control-lever position  
                   Degree: -1  
 Speed 1/min: 1190  
 Contr.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

D13

Speed 1/min: 1150  
 Charge press. hPa : 700  
 Del.quantity cm3/ : 159.0...161.0  
                   1000H.: (156.0...164.0)  
 Dispersion cm3/ : 5.00  
                   1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
   position degrees: 46...54

**Testing:**

1st c-rod trav.mm : 9.70  
   Speed 1/min : 1190...1200  
 2nd c-rod trav.mm : 4.00  
   Speed 1/min : 1270...1300  
 4th speed 1/min : 1400  
   C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
   position degrees: 15...23

**Testing:**

Speed 1/min : 100  
 C-rod trav.mm min : 6.70  
 Speed 1/min : 300  
 C-rod trav.mm : 5.00...5.20

**CONSTANT REGULATION**

Speed 1/min : 300...400

**TORQUE CONTROL**

Torque-control curve - 1st version  
 1st speed 1/min : 1150  
   C-rod trav.mm : 10.70...10.80  
 2nd speed 1/min : 750  
   C-rod trav.mm : 11.00...11.20

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
 Speed 1/min : 500  
 Pressure hPa : -  
 Contr.-rod trav.mm: 10.00...10.30

**Measurement**

Speed 1/min : 500  
 1st pressure hPa : 450  
   C-rod trav.mm : 10.10...10.20  
 2nd pressure hPa : 500  
   C-rod trav.mm : 10.50...10.70

**SWITCH-OVER POINT**

Speed 1/min : 220 (240)

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 750

Del.quantity cm3/ : 173.5...175.5

1000H.: (170.5...178.5)

Dispersion cm3/ : 7.00

1000H.: (12.0)

Charge press. hPa : 700

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 138.0...140.0

1000H.: (135.0...143.0)

Dispersion cm3/ : 7.00

1000H.: (12.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 140.0...160.0

1000H.: (136.0...164.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 R  
Edition : 13.05.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113

Combination no. : 0 401 848 764

Injection pump  
Pump designation : PE8P110A32OLS3813-10  
EP type number : 0 411 818 712  
Governor  
Governor design. : RQ300/1150PA187-3  
Governor no. : 0 421 801 133

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 206.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27



Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

#### BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm3/ : 13.2...13.4

100H.: (13.0...13.7)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.9...8.1

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 650

Contr.-rod travelmm: 13.00...14.00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 132.5...134.5

1000H.: (130.0...137.0)

Dispersion cm3/ : 4.00

1000H.: (8.00)

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 13.5

Testing:

1st c-rod trav.mm : 10.70

Speed 1/min : 1195...1210

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 8.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.60

Speed 1/min : 300

C-rod trav.mm : 7.90...8.10

C-rod trav.mm : 2.00

Speed 1/min : 420...460

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 109.5...115.5

1000H.: (106.5...118.5)

Dispersion cm3/ : 8.00

1000H.: (11.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 130.0...150.0

1000H.: (126.0...154.0)

Remarks:



Speed 1/min: 1150  
Charge press. hPa : 700  
Del.quantity cm3/ : 159.0...161.0  
1000H.: (156.0...164.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 9.70  
Speed 1/min : 1195...1210  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1250...1280  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 5.0

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 6.60  
Speed 1/min : 300  
C-rod trav.mm : 4.90...5.10  
C-rod trav.mm : 2.00  
Speed 1/min : 365...415

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 10.70...10.80  
2nd speed 1/min : 750  
C-rod trav.mm : 10.90...11.10

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 10.00...10.30

#### Measurement

Speed 1/min : 500  
1st pressure hPa : 450  
C-rod trav.mm : 10.10...10.20  
2nd pressure hPa : 500  
C-rod trav.mm : 10.50...10.70

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 700  
Speed 1/min : 750  
Del.quantity cm3/ : 173.5...175.5  
1000H.: (170.5...178.5)  
Dispersion cm3/ : 7.00  
1000H.: (11.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 138.0...140.0  
1000H.: (135.0...143.0)  
Dispersion cm3/ : 7.00  
1000H.: (11.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...160.0  
1000H.: (136.0...164.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14.7 D 1  
Edition : 10.12.86  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 848 782  
  
Injection pump  
Pump designation : PE8P110A320LS3842  
EP type number : 0 411 818 714  
Governor  
Governor design. : RQV300...950PA829-1K  
Governor no. : 0 421 815 167

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 206.0  
Speed 1/min: 1900

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

#### BASIC SETTING

1st speed 1/mi: 950

Contr.-rod trav.mm: 13.50...13.60

Del.quantity cm3/ : 13.3...13.5

100H.: (13.0...13.7)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.8...9.0

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 3.20...3.40

3rd speed 1/min: 800

Sleeve travel mm: 5.90...6.10

4th speed 1/min: 1000

Sleeve travel mm: 8.00...8.40

5th speed 1/min: 1125

Sleeve travel mm: 9.60...10.00

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 975

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 950

Del.quantity cm3/ : 133.0...135.0  
1000H.: (130.5...137.5)  
Dispersion cm3/ : 4.00  
1000H.: (8.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 57...65

#### Testing:

1st c-rod trav.mm : 12.50

Speed 1/min : 990...1000

2nd c-rod trav.mm : 4.00

Speed 1/min : 1095...1125

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Control-lever

position degrees: 14...22

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.50

Speed 1/min : 300

C-rod trav.mm : 8.80...9.00

#### CONSTANT REGULATION

Speed 1/min : 300...450

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 950

C-rod trav.mm : 13.50...13.60

2nd speed 1/min : 600

C-rod trav.mm : 12.90...13.10

3rd speed 1/min : 750

C-rod trav.mm : 13.20...13.40

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 118.0...121.0

1000H.: (115.0...124.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

Speed 1/min : 750

Del.quantity cm3/ : 122.0...126.0

1000H.: (119.0...129.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 120.0...140.0  
1000H.: (116.0...144.0)

Remarks:

## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 D 3  
Edition : 13.05.87  
Superceeded : 28.10.86  
Calibrating oil : ISO-4113

Combination no. : 0 401 848 784

Injection pump  
Pump designation : PE8P110A32OLS3842  
EP type number : 0 411 818 714  
Governor  
Governor design. : RQV300...950PA524-11  
Governor no. : 0 421 813 578

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 191.0  
Speed 1/min: 1900

### TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
                          270-315

Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 8

#### BASIC SETTING

1st speed 1/mi: 950

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm3/ : 11.8...12.0

100H.: (11.5...12.2)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.3...8.5

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.00...1.20

2nd speed 1/min: 550

Sleeve travel mm: 4.90...5.10

3rd speed 1/min: 1000

Sleeve travel mm: 8.20...8.50

4th speed 1/min: 1050

Sleeve travel mm: 9.10...9.40

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1000

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 950

Del.quantity cm3/ : 118.0...120.0

1000H.: (115.5...122.5)

Dispersion cm3/ : 4.00  
1000H.: (8.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 51...59

#### Testing:

1st c-rod trav.mm : 11.00

Speed 1/min : 990...1000

2nd c-rod trav.mm : 4.00

Speed 1/min : 1050...1080

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Control-lever

position degrees: 18...26

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.00

Speed 1/min : 300

C-rod trav.mm : 8.30...8.50

#### CONSTANT REGULATION

Speed 1/min : 300...450

#### SWITCH-OVER POINT

Speed 1/min : 270 (290)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 108.0...112.0

1000H.: (105.0...115.0)

Dispersion cm3/ : 6.00

1000H.: (11.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 120.0...140.0

1000H.: (116.0...144.0)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 C 2  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 401 848 786  
Injection pump  
Pump designation : PE8P110A32OLS3842  
EP type number : 0 411 818 714  
Governor  
Governor design. : RQ300/1050PA827-3K  
Governor no. : 0 421 803 095

Customer spec. information  
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 12.90...13.00

Del. quantity cm3/ : 13.2...13.4

100H.: (12.9...13.6)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.8...9.0

Del. quantity cm3/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.60...1.80

2nd speed 1/min: 500

Sleeve travel mm: 5.50...5.70

3rd speed 1/min: 900

Sleeve travel mm: 7.00...7.30

4th speed 1/min: 1050

Sleeve travel mm: 7.60...7.90

5th speed 1/min: 1100

Sleeve travel mm: 9.50...10.00

## SLEEVE POSITION

Control-lever position

Degree: 108

Speed 1/min: 600

Contr.-rod travelmm: 16.30...17.30

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Del.quantity cm3/ : 132.0...134.0  
1000H.: (129.5...136.5)  
Dispersion cm3/ : 4.00  
1000H.: (8.00)

Remarks:

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 600  
Contr.-rod trav.mm: 16.8

Testing:

1st c-rod trav.mm : 11.90  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1160...1190  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 8.9

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 10.00  
Speed 1/min : 300  
C-rod trav.mm : 8.80...9.00  
C-rod trav.mm : 2.00  
Speed 1/min : 400...440

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050  
C-rod trav.mm : 12.90...13.00  
2nd speed 1/min : 600  
C-rod trav.mm : 12.80...13.00  
3rd speed 1/min : 750  
C-rod trav.mm : 13.20...13.40

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm3/ : 119.0...122.0  
1000H.: (116.0...125.0)  
Dispersion cm3/ : 8.00  
1000H.: (11.0)  
Speed 1/min : 900  
Del.quantity cm3/ : 130.0...134.0  
1000H.: (127.0...137.0)  
Dispersion cm3/ : 8.00  
1000H.: (-)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...160.0  
1000H.: (136.0...164.0)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 E 3  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 848 787  
  
Injection pump  
Pump designation : PE8P110A320LS3802-10  
EP type number : 0 411 818 710  
Governor  
Governor design. : RQ300/1150PA187-16  
Governor no. : 0 421 801 385

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM422

1st version kW : 191.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
                          270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

#### BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 11.9...12.1

100H.: (11.6...12.3)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.0...8.2

Del.quantity cm3/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 650

Contr.-rod travelmm: 13.00...14.00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 119.0...121.0

1000H.: (116.5...123.5)

Dispersion cm3/ : 4.00

1000H.: (8.00)

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 13.5

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1195...1210

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 8.1

Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.20

Speed 1/min : 300

C-rod trav.mm : 8.00...8.20

C-rod trav.mm : 2.00

Speed 1/min : 420...460

Speed 1/min : 550

C-rod trav.mm max : 1.80

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 93.0...97.0

1000H.: (90.0...100.0)

Dispersion cm3/ : 8.00

1000H.: (11.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 130.0...150.0

1000H.: (126.0...154.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 W  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 848 788  
  
Injection pump  
Pump designation : PE8P120A32OLS3816-11  
EP type number : 0 411 828 720  
Governor  
Governor design. : RQV350...1150PA854  
Governor no. : 0 421 813 602

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 243.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 15.8...16.0

100H.: (15.5...16.3)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm3/ : 1.2...1.8

100H.: (0.9...2.1)

Dispersion cm3/ : 0.8

100H.: (1.2)

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1150

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 700

Del.quantity cm3/ : 158.0...160.0

1000H.: (155.0...163.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

Testing:

1st c-rod trav.mm : 10.00  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1270...1300  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.00  
Speed 1/min : 350  
C-rod trav.mm : 4.90...5.10

#### CONSTANT REGULATION

Speed 1/min : 370...480

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 850  
C-rod trav.mm : 11.20...11.40  
3rd speed 1/min : 750  
C-rod trav.mm : 11.30...11.50

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 11.50...11.70

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.50...10.60  
2nd pressure hPa : 470  
C-rod trav.mm : 11.40...11.50  
3rd pressure hPa : 400  
C-rod trav.mm : 10.90...11.00

#### SWITCH-OVER POINT

Speed 1/min : 270 (290)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 700  
Speed 1/min : 600  
Del.quantity cm3/ : 166.0...172.0  
1000H.: (163.0...175.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 140.0...142.0  
1000H.: (137.0...145.0)  
Dispersion cm3/ : 8.00  
1000H.: (-)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 150.0...170.0  
1000H.: (146.0...174.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 15,8 F  
Edition : 09.03.87  
Superceded : 3.85  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 849 703  
  
Injection pump  
Pump designation : PE10P110A920/SL3073  
EP type number : 0 411 819 701  
Governor  
Governor design. : RQV300...1150PA549  
Governor no. : 0 421 813 277

Customer-spec. information  
Customer : KHD

Engine : BF10L413F

1st version kW : 265.0  
Speed 1/min: 2050

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-10- 9- 4- 3- 6-  
5- 8- 7- 2

SD ang. spacing<sup>o</sup>CS: 0-27-72-99-144-171-2  
16-243-288-315

Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm3/ : 14.4...14.6

100H.: (14.1...14.9)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.9...7.1

Del.quantity cm3/ : 1.8...2.4

100H.: (-)

Dispersion cm3/ : 0.4

100H.: (0.7)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1220

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 144.0...146.0

1000H.: (141.0...149.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 60...68

Testing:

1st c-rod trav.mm : 11.00

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1270...1300

4th speed 1/min : 1400

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 20...28

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.40

Speed 1/min : 300

C-rod trav.mm : 6.90...7.10

#### CONSTANT REGULATION

Speed 1/min : 300...500

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 700

C-rod trav.mm : 12.00...12.10

2nd speed 1/min : 1150

C-rod trav.mm : 10.70...10.90

3rd speed 1/min : 1050

C-rod trav.mm : 11.10...11.20

4th speed 1/min : 1025

C-rod trav.mm : 11.20...11.40

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.00...10.20

2nd pressure hPa : 500

C-rod trav.mm : 11.50...11.60

3rd pressure hPa : 350

C-rod trav.mm : 10.40...10.60

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 98.0...102.0

1000H.: (95.0...105.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 130.0...160.0

1000H.: (-)



Remarks:

On activation of the starting solenoid,  
the start position must be reached.

APPLICATION

Maxidyne

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 D 1  
Edition : 13.05.87  
Superceeded : 28.10.86  
Calibrating oil : ISO-4113  
Combination no. : 0 401 849 709  
Injection pump  
Pump designation : PE10P110A32OLS3818-1  
EP type number : 0 411 819 703  
Governor  
Governor design. : RQV350...1150PA678  
Governor no. : 0 421 813 402

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 423

1st version kW : 261.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 10- 9- 4- 1- 8- 7  
                  - 6- 3- 5- 2

SD ang. spacing°CS: 0-45-72-117-144-189-  
                                  216-261-288-333

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

## BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 12.20...12.30

Del.quantity cm3/ : 12.6...12.8

100H.: (12.3...13.0)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 8.5...8.7

Del.quantity cm3/ : 1.4...2.2

100H.: (1.1...2.4)

Dispersion cm3/ : 0.4

100H.: (0.7)

## SLEEVE POSITION

Speed 1/min: 1200

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Del.quantity cm3/ : 126.0...128.0

1000H.: (123.5...130.5)

Dispersion cm3/ : 4.00

1000H.: (8.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 60...68

Testing:

1st c-rod trav.mm : 11.20

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1400

C-rod trav.mm : 0.00...1.00

# LOWEST RATED SPEED I

Control-lever

position degrees: 10...18

## Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.20

Speed 1/min : 350

C-rod trav.mm : 8.50...8.70

## CONSTANT REGULATION

Speed 1/min : 350...500

## TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 12.20...12.30

2nd speed 1/min : 600

C-rod trav.mm : 12.80...13.00

3rd speed 1/min : 900

C-rod trav.mm : 12.60...12.80

## SWITCH-OVER POINT

Speed 1/min : 270 (290)

## FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 116.0...120.0

1000H.: (113.0...123.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

Speed 1/min : 900

Del.quantity cm3/ : 122.0...127.0

1000H.: (119.0...130.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

Speed 1/min : 1150

Del.quantity cm3/ : 92.0...94.0 \*

1000H.: (89.0...97.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 150.0...170.0

1000H.: (146.0...174.0)

## Remarks:

\* = Set at reduced-delivery stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 15,8 Q  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 849 728  
  
Injection pump  
Pump designation : PE10P110A920/SLS3138  
EP type number : 0 411 819 707  
Governor  
Governor design. : RQV425....900PA814  
Governor no. : 0 421 813 558

Customer-spec. information  
Customer : KHD

Engine : F10L513 OPT.

1st version kW : 188.0  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20  
                  : (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-10- 9- 4- 3- 6-  
                  5- 8- 7- 2

SD ang. spacing°CS: 0-27-72-99-144-171-  
                          216-243-288-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 10.40...10.50

Del.quantity cm3/ : 9.4...9.6

100H.: (9.1...9.9)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/ : 1.2...1.8

100H.: (0.9...2.0)

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 425

Sleeve travel mm: 1.50...1.60

2nd speed 1/min: 460

Sleeve travel mm: 2.70...3.10

3rd speed 1/min: 500

Sleeve travel mm: 3.20...3.50

4th speed 1/min: 950

Sleeve travel mm: 8.40...8.60

5th speed 1/min: 1010

Sleeve travel mm: 9.50...9.70

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 950

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del.quantity cm3/ : 94.0...96.0

1000H.: (91.0...99.0)

Dispersion cm3/ : 4.00  
1000H.: (7.50)

APPLICATION  
Compressor

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...58

#### Testing:

1st c-rod trav.mm : 9.40

Speed 1/min : 940...950

2nd c-rod trav.mm : 4.00

Speed 1/min : 980...1010

4th speed 1/min : 1150

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 14...22

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.40

Speed 1/min : 425

C-rod trav.mm : 5.90...6.10

#### CONSTANT REGULATION

Speed 1/min : 435...490

#### TORQUE CONTROL

Dimension a mm : 0.30

Torque-control curve - 1st version

1st speed 1/min : 900

C-rod trav.mm : 10.40...10.50

2nd speed 1/min : 550

C-rod trav.mm : 10.70...10.80

3rd speed 1/min : 675

C-rod trav.mm : 10.70...10.80

4th speed 1/min : 750

C-rod trav.mm : 10.60...10.70

#### SWITCH-OVER POINT

Speed 1/min : 340 (360)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 675

Del.quantity cm3/ : 96.0...100.0

1000H.: (94.0...102.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 135.0...165.0

1000H.: (131.0...169.0)

On activation of the starting solenoid,  
the start position must be reached.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 15,8 0  
Edition : 09.03.87  
Superceeded : 12.9.86  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 849 729  
  
Injection pump  
Pump designation : PE10P110A920/SLS3073  
EP type number : 0 411 819 701  
Governor  
Governor design. : RQV300...1150PA816  
Governor no. : 0 421 813 559

Customer-spec. information  
Customer : KHD

Engine : BF10L413F

1st version kW : 252.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-10- 9- 4- 3- 6-  
5- 8- 7- 2

SD ang. spacing°CS: 0-27-72-99-144-171-2  
16-243-288-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 10.80...10.90

Del.quantity cm3/ : 12.4...12.6

100H.: (12.1...12.9)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.7...6.9

Del.quantity cm3/ : 1.4...1.9

Dispersion cm3/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.30...1.40

2nd speed 1/min: 390

Sleeve travel mm: 2.40...2.80

3rd speed 1/min: 450

Sleeve travel mm: 2.80...3.20

4th speed 1/min: 1180

Sleeve travel mm: 8.30...8.40

5th speed 1/min: 1260

Sleeve travel mm: 9.10...9.30

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1190

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 700

Del.quantity cm3/ : 124.0...126.0

1000H.: (121.0...129.0)

Dispersion cm3/ : 4.00  
1000H.: (7.50)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 59...67

#### Testing:

1st c-rod trav.mm : 9.80  
Speed 1/min : 1180...1190  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1265...1295  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 15...23

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.20  
Speed 1/min : 300  
C-rod trav.mm : 6.70...6.90

#### CONSTANT REGULATION

Speed 1/min : 320...480

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 10.80...10.90

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.90...10.00  
2nd pressure hPa : 355  
C-rod trav.mm : 10.60...10.70  
3rd pressure hPa : 310  
C-rod trav.mm : 10.10...10.30

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 700  
Speed 1/min : 800  
Del.quantity cm3/ : 119.0...123.0  
1000H.: (116.0...126.0)  
Charge press. hPa : -  
Speed 1/min : 500

Del.quantity cm3/ : 98.0...102.0  
1000H.: (96.0...104.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 130.0...160.0

On activation of the starting solenoid,  
the start position must be reached.

#### APPLICATION

Excavator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 E 4  
 Edition : 16.06.87  
 Superceeded : 5.11.86  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 849 733  
 Injection pump  
 Pump designation : PE10P120A320LS3824-10  
 EP type number : 0 411 829 701  
 Governor  
 Governor design. : RQ300/1150PA546-9  
 Governor no. : 0 421 801 371

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 423 LA

1st version kW : 301.0  
 Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 130...150

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 10- 9- 4- 1- 8- 7  
 - 6- 3- 5- 2

SD ang. spacing°CS: 0-45-72-117-144-189-  
 216-261-288-333

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

## BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 15.2...15.4

100H.: (14.9...15.7)

Dispersion cm3/ : 0.5

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 100

Sleeve travel mm: 0.00...0.50

2nd speed 1/min: 300

Sleeve travel mm: 2.60...2.70

3rd speed 1/min: 600

Sleeve travel mm: 5.90...6.00

4th speed 1/min: 1150

Sleeve travel mm: 5.90...6.00

## SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP



# 1st version

Speed 1/min: 1150  
Charge press. hPa : 700  
Del.quantity cm3/ : 152.0...154.0  
1000H.: (149.0...157.0)  
Dispersion cm3/ : 5.00  
1000H.: (8.00)

## HIGHEST RATED SPEED

### Setting point:

Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

### Testing:

1st c-rod trav.mm : 10.10  
Speed 1/min : 1195...1210  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1250...1280  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.50  
Speed 1/min : 300  
C-rod trav.mm : 5.00...5.20  
C-rod trav.mm : 2.00  
Speed 1/min : 360...400

## TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 750  
C-rod trav.mm : 11.60...11.80

compensator (LDA,ADA,ALDA)

## 1st version

### Setting

Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 10.40...10.60

### Measurement

Speed 1/min : 500

1st pressure hPa : 360  
C-rod trav.mm : 10.50...10.60  
2nd pressure hPa : 420  
C-rod trav.mm : 10.90...11.10

## SWITCH-OVER POINT

Speed 1/min : 220 (240)

## FUEL-DELIVERY CHARACTERISTICS

### 1st version

Charge press. hPa : 700  
Speed 1/min : 750  
Del.quantity cm3/ : 169.0...172.0  
1000H.: (166.0...175.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 134.0...136.0  
1000H.: (131.0...139.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 150.0...170.0  
1000H.: (146.0...174.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 E 5  
 Edition : 30.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 849 736  
 Injection pump  
 Pump designation : PE10P120A32OLS3824-1  
 EP type number : 0 411 829 701  
 Governor  
 Governor design. : RQ300/1050PA859  
 Governor no. : 0 421 801 394

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 423 LA

1st version kW : 368,0  
 Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 130...150

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                   : (3.95...4.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 10- 9- 4- 1- 8- 7  
                   - 6- 3- 5- 2

SD ang. spacing<sup>o</sup>CS: 0-45-72-117-144-189-  
                           216-261-288-333  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

**BASIC SETTING**

1st speed 1/mi: 1150  
 -----  
 Contr.-rod trav.mm: 11.70...11.80  
 -----  
 Del.quantity cm3/ : 18.3...18.5  
 -----  
                   100H.: (18.0...18.8)  
 -----  
 Dispersion cm3/ : 0.5  
 -----  
                   100H.: (0.8)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 5.0...5.2  
 Del.quantity cm3/ : 1.6...2.2  
                   100H.: (1.3...2.5)  
 Dispersion cm3/ : 0.8  
                   100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor**SLEEVE TRAVELS**

1st speed 1/min: 100  
   Sleeve travel mm: 0.10...0.50  
 2nd speed 1/min: 300  
   Sleeve travel mm: 2.50...2.80  
 3rd speed 1/min: 600  
   Sleeve travel mm: 5.90...6.00  
 4th speed 1/min: 1200  
   Sleeve travel mm: 6.20...6.60  
 5th speed 1/min: 1270  
   Sleeve travel mm: 8.80...9.20

**SLEEVE POSITION**

Control-lever position  
                   Degree: 108  
 Speed 1/min: 600  
 Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

**1st version**

Speed 1/min: 1150  
 Charge press. hPa : 700  
 Del.quantity cm3/ : 183.0...185.0  
                   1000H.: (180.0...188.0)  
 Dispersion cm3/ : 5.00  
                   1000H.: (8.00)

**HIGHEST RATED SPEED**

Setting point:  
 Speed 1/min : 600  
 Contr.-rod trav.mm: 20.0

Testing:  
 1st c-rod trav.mm : 10.70  
   Speed 1/min : 1195...1210  
 2nd c-rod trav.mm : 4.00  
   Speed 1/min : 1245...1275  
 4th speed 1/min : 1350  
   C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Setting point w/out aux. spring  
 Speed 1/min : 300  
 Contr.-rod trav.mm: 5.1

Testing:  
 Speed 1/min : 100  
 C-rod trav.mm min : 6.50  
 Speed 1/min : 300  
 C-rod trav.mm : 5.00...5.20  
 C-rod trav.mm : 2.00  
 Speed 1/min : 360...400

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
 Speed 1/min : 500  
 Pressure hPa : 700  
 Contr.-rod trav.mm: 11.70...11.80

**Measurement**

Speed 1/min : 500  
 1st pressure hPa : -  
   C-rod trav.mm : 10.00...10.20  
 2nd pressure hPa : 390  
   C-rod trav.mm : 10.40...10.60  
 3rd pressure hPa : 520  
   C-rod trav.mm : 11.40...11.50

**SWITCH-OVER POINT**

Speed 1/min : 220 (240)

**FUEL-DELIVERY CHARACTERISTICS**

1st version

Charge press. hPa : 700

Speed 1/min : 750

Del.quantity cm3/ : 186.0...192.0

1000H.: (183.0...195.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 138.0...141.0

1000H.: (135.0...144.0)

Dispersion cm3/ : 8.00

1000H.: (12.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 150.0...170.0

1000H.: (146.0...174.0)

Remarks:

## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE 10,0 D2  
Edition : 09.03.87  
Superceeded : 10.83  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 856 155  
  
Injection pump  
Pump designation : PE6P110A321RS157-1  
EP type number : 0 411 816 157  
Governor  
Governor design. : RQ250...1100PA692  
Governor no. : 0 421 801 240

Customer-spec. information  
Customer : STEYR

Engine : 9 FU-A

1st version kW : 184.0  
Speed 1/min: 2200

### TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

### START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm3/ : 13.4...13.6

100H.: (13.1...13.9)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/ : 1.7...2.2

Dispersion cm3/ : 0.4

100H.: (0.7)

#### SLEEVE POSITION

Control-lever position

Degree: 101

Speed 1/min: 600

Contr.-rod travelmm: 15.20...20.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

##### 1st version

Speed 1/min: 1100

Charge press. hPa : 700

Del.quantity cm3/ : 134.0...136.0

1000H.: (131.0...139.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 9.20

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1200...1230

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

E20

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.40

Speed 1/min : 250

C-rod trav.mm : 5.90...6.10

C-rod trav.mm : 2.00

Speed 1/min : 335...375

#### TORQUE CONTROL

Dimension ø mm : 0.55

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 10.20...10.30

2nd speed 1/min : 900

C-rod trav.mm : 10.70...10.90

3rd speed 1/min : 700

C-rod trav.mm : 11.10...11.30

4th speed 1/min : 550

C-rod trav.mm : 11.30...11.50

compensator (LDA,ADA,ALDA)

##### 1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 10.70...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.50...9.60

2nd pressure hPa : 520

C-rod trav.mm : 10.50...10.60

3rd pressure hPa : 420

C-rod trav.mm : 9.80...10.00

#### SWITCH-OVER POINT

Speed 1/min : 170 (190)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 700

Speed 1/min : 550

Del.quantity cm3/ : 138.0...142.0

1000H.: (135.0...145.0)

Speed 1/min : 500

Del.quantity cm3/ : 106.0...110.0

1000H.: (103.0...113.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...160.0

Remarks:  
APPLICATION  
Omnibus

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE 10,0 D3  
 Edition : 09.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 856 157  
 Injection pump  
 Pump designation : PE6P110A321RS157-1  
 EP type number : 0 411 816 157  
 Governor  
 Governor design. : RQ250...1100PA692-1  
 Governor no. : 0 421 801 393

Customer-spec. information  
 Customer : STEYR

Engine : 9 FU-A

1st version kW : 206.0  
 Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Contr.-rod trav,mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav,mm: 11.10...11.20

Del.quantity cm3/ : 14.5...14.7

100H.: (14.2...15.0)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav, m: 6.2...6.4

Del.quantity cm3/ : 1.3...1.8

100H.: (-)

Dispersion cm3/ : 0.4

100H.: (0.7)

## SLEEVE POSITION

Control-lever position

Degree: 45...47

Speed 1/min: 600

Contr.-rod travelmm: 19.20...20.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 700

Del.quantity cm3/ : 145.0...147.0

1000H.: (142.0...150.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

## HIGHEST RATED SPEED

Setting point:

Speed 1/min : 600

Contr.-rod trav,mm: 20.0

Testing:

1st c-rod trav,mm : 10.10

Speed 1/min : 1145...1160

2nd c-rod trav,mm : 4.00

Speed 1/min : 1205...1235

4th speed 1/min : 1350

C-rod trav,mm : 0.00...1.00



#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 6.3

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.70

Speed 1/min : 250

C-rod trav.mm : 6.20...6.40

C-rod trav.mm : 2.00

Speed 1/min : 340...380

#### TORQUE CONTROL

Dimension a mm : 0.50

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 11.10...11.20

2nd speed 1/min : 500

C-rod trav.mm : 12.20...12.30

3rd speed 1/min : 840

C-rod trav.mm : 11.30...11.50

4th speed 1/min : 720

C-rod trav.mm : 12.00...12.20

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 12.20...12.30

##### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 8.70...8.90

2nd pressure hPa : 380

C-rod trav.mm : 11.50...11.60

3rd pressure hPa : 135

C-rod trav.mm : 9.80...10.00

#### SWITCH-OVER POINT

Speed 1/min : 170 (190)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 700

Speed 1/min : 500

Del.quantity cm3/ : 161.0...165.0

1000H.: (158.0...168.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 84.0...88.0

1000H.: (81.0...91.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 155.0...185.0

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 R4  
Edition : 26.6.87  
Superceeded : 1.85  
Calibrating oil : ISO-4113

Combination no. : 0 401 876 720

Injection pump  
Pump designation : PE6P110A72ORS3040  
EP type number : 0 411 816 713  
Governor  
Governor design. : RSV350...1100P1/481  
Governor no. : 0 421 833 121

Customer-spec. information  
Customer : SCANIA

Engine : DS11 05

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40  
: (3.25...3.45)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 13.10...13.20

Del.quantity cm3/ : 15.6...15.8

100H.: (15.4...16.0)

Dispersion cm3/ : 0.6

100H.: (0,8)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 800

Contr.-rod travelmm: 0.30...1.00

Governor-springreload

Notch setting x : 6.00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm3/ : 156.0...158.0

1000H.: (154.0...160.0)

Dispersion cm3/ : 6.9

1000H.: (8.0)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 62...70

Testing:

1st c-rod trav.mm : 12.10

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1210...1240

4th speed 1/min : 1350

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever

position degrees: 26...34

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 4.00

Speed 1/min : 350

C-rod trav.mm : 4.40...4.60

C-rod trav.mm : 2.00

Speed 1/min : 440...500

E25

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700

Del.quantity cm3/ : 156.5...161.5

1000H.: (154.0...164.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 240.0...290.0

1000H.: (-)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on August 29, 1983

Start of delivery - engine: 20° before  
TDC

Firing sequence of engine:

1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 Y1  
Edition : 21.05.87  
Superseded : 7.85  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 876 728  
  
Injection pump  
Pump designation : PE6P110A72ORS3115  
EP type number : 0 411 816 735  
Governor  
Governor design. : RSV350...1100P1/481  
Governor no. : 0 421 833 121

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DN11 01

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40  
                  : (3.25...3.45)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 600  
-----  
Contr.-rod trav.mm: 12.40...12.50  
-----  
Del.quantity cm3/ : 11.9...12.1  
-----  
100H.: (11.7...12.3)  
-----  
Dispersion cm3/ : 0.5  
-----  
100H.: (0.7)  
-----

2nd speed 1/min: 350.0  
Contr.-rod trav. m: 5.1...5.3  
Del.quantity cm3/ : 2.0...2.4  
100H.: (-)  
Dispersion cm3/ : 0.2  
100H.: (0.4)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0.30...1.00

Governor-spring reload  
Notch setting x : 6.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 600  
Del.quantity cm3/ : 119.0...121.0  
1000H.: (117.0...123.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 62...70

## Testing:

1st c-rod trav.mm : 11.40  
Speed 1/min : 1140...1150  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1210...1240  
4th speed 1/min : 1370  
C-rod trav.mm : 0.30...1.70

## LOWEST RATED SPEED I

Control-lever

position degrees: 27...35  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 4.7  
Speed 1/min : 350  
C-rod trav.mm : 4.60...4.80  
C-rod trav.mm : 2.00  
Speed 1/min : 470...530

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1100  
Del.quantity cm3/ : 119.5...124.5  
1000H.: (117.0...127.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5.10...5.30  
Del.quantity cm3/ : 20.0...24.0  
Dispersion cm3/ : 2.00  
1000H.: (4.00)

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on Aug. 22, 1983  
Start of delivery - engine: 21° before  
TDC

E27

Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 E 2  
Edition : 9.86  
Superceeded : 3.85  
Calibrating oil : ISO-4113

Combination no. : 0 401 876 733

Injection pump  
Pump designation : PE6P120A32OLS3810-10  
Governor  
Governor design. : RSV350...1150POA810

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 421 A

1st version kW : 184.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6,00X1,50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1-6-3-5-2-4

SD ang. spacing°CS: 0-75-120-195-240-315  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 1130

Contr.-rod trav.mm: 10.60...10.70

Del.quantity cm3/ : 16.3...16.5

100H.: (16.0...16.8)

Dispersion cm3/ : 0.50

100H.: (0.75)

2nd speed 1/min: 350

Contr.-rod trav. m: 4.70...4.90

Del.quantity cm3/ : 1.6...2.2

100H.: (-)

Dispersion cm3/ : 0.8

100H.: (1.2)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 4.75

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1130

Del.quantity cm3/ : 163.0...165.0

1000H.: (160.0...168.0)

Dispersion cm3/ : 5.0

1000H.: (9.0)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 52...60

Testing:

1st c-rod trav.mm : 9.60

Speed 1/min: 1175...1185

2nd c-rod trav.mm : 4.00

Speed 1/min: 1250...1270

3rd c-rod trav.mm : 0.30...1.40

Speed 1/min: 1350

LOWEST RATED SPEED I

Control-lever

position degrees: 32...40

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 4.80

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 350

C-rod trav.mm : 4.70...4.90

C-rod trav.mm : 2.00

Speed 1/min : 380...440

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 140.0...160.0

1000H.: (136.0...164.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 D 1  
 Edition : 12.09.86  
 Superceeded : 12.85  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 876 739  
 Injection pump  
 Pump designation : PE6P110A320LS3805-10  
 EP type number : 0 411 816 740  
 Governor  
 Governor design. : RSV650...1150P1A820-  
 3  
 Governor no. : 0 421 833 177

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM421

1st version kW : 159.0  
 Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...110

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

F02

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-45-120-165-240-285  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 1180

Contr.-rod trav.mm: 12.50...12.60

Del.quantity cm3/ : 13.7...13.9

100H.: (13.4...14.1)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 650.0

Contr.-rod trav. m: 6.0...6.2

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.4)

Dispersion cm3/ : 0.4

100H.: (0.7)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : ?

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1180

Del.quantity cm3/ : 137.0...139.0

1000H.: (134.5...141.5)

Dispersion cm3/ : 4.00

1000H.: (8.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 53...61

Testing:

1st c-rod trav.mm : 11.50

Speed 1/min : 1210...1220



2nd c-rod trav.mm : 4.00  
Speed 1/min : 1240...1260  
4th speed 1/min : 1350  
C-rod trav.mm : 0.30...1.40

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 26...34  
Setting point w/out aux. spring  
Speed 1/min : 650  
Contr.-rod trav.mm: 6.1

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 650  
C-rod trav.mm : 6.00...6.20  
C-rod trav.mm : 2.00  
Speed 1/min : 650...715

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1180  
C-rod trav.mm : 12.40...12.50  
2nd speed 1/min : 970  
C-rod trav.mm : 12.90...13.10  
3rd speed 1/min : 1100  
C-rod trav.mm : 12.50...12.70  
4th speed 1/min : 700  
C-rod trav.mm : 13.10...13.30

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 970  
Del.quantity cm3/ : 137.0...141.0  
1000H.: (134.0...144.0)  
Dispersion cm3/ : 6.00  
1000H.: (9.00)

Remarks:



2nd c-rod trav.mm : 4.00  
Speed 1/min : 1235...1255  
4th speed 1/min : 1350  
C-rod trav.mm : 0.30...1.40

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 32...40  
Setting point w/out aux. spring  
Speed 1/min : 750  
Contr.-rod trav.mm: 3.4  
Speed 1/min : 750  
C-rod trav.mm : 3.30...3.50  
C-rod trav.mm : 2.00  
Speed 1/min : 755...815

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1180  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 975  
C-rod trav.mm : 11.60...11.80  
3rd speed 1/min : 600  
C-rod trav.mm : 11.80...12.00

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 975  
Del.quantity cm3/ : 174.0...180.0  
1000H.: (171.0...183.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

Remarks:



Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 780...793

LOWEST RATED SPEED I

Control-lever  
position degrees: 12...20  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 7.1

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 350  
C-rod trav.mm : 7.00...7.20

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...160.0  
1000H.: (136.0...164.0)

Remarks:

Observe VDT-I-420/120

0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,6 P 3  
Edition : 12.09.86  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 401 878 707

Injection pump  
Pump designation : PE8P120A32QLS3816-10  
EP type number : 0 411 828 715  
Governor  
Governor design. : RSV350...0750POA824-  
3  
Governer no. : 0 421 833 229

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM422A

1st version kW : 227.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm3/ : 18.4...18.6

100H.: (18.1...18.9)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 4.8...5.0

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 2.50

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 184.0...186.0

1000H.: (181.0...189.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 26...30

Testing:

1st c-rod trav.mm : 11.10  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 780...793

LOWEST RATED SPEED I

Control-lever  
position degrees: 12...20  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 4.9

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 350  
C-rod trav.mm : 4.80...5.00

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 170.0...190.0  
1000H.: (166.0...194.0)

Remarks:

Observe VDT-I-420/120

0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 I 1  
Edition : 12.09.86  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 401 879 703  
  
Injection pump  
Pump designation : PE10P110A320LS3818-11  
EP type number : 0 411 819 706  
Governor  
Governor design. : RSV650...1150POA823-2  
Governor no. : 0 421 833 244

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 423

1st version kW : 238.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

F10

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 10- 9- 4- 1- 8- 7  
                  - 6- 3- 5- 2

SD ang. spacing°CS: 0-45-72-117-144-189-216-261-288-333  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

## BASIC SETTING

1st speed 1/mi: 1180  
-----  
Contr.-rod trav.mm: 10.90...11.00  
-----  
Del.quantity cm3/ : 11.3...11.5  
-----  
100H.: (11.0...11.7)  
-----  
Dispersion cm3/ : 0.4  
-----  
100H.: (0.8)  
-----

2nd speed 1/min: 650.0  
Contr.-rod trav. m: 5.7...5.9  
Del.quantity cm3/ : 1.2...2.0  
100H.: (0.9...2.2)  
Dispersion cm3/ : 0.4  
100H.: (0.7)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1180  
Del.quantity cm3/ : 113.0...115.0  
1000H.: (110.5...117.5)  
Dispersion cm3/ : 4.00  
1000H.: (8.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 36...44

Testing:  
1st c-rod trav.mm : 10.00  
Speed 1/min : 1210...1220



2nd c-rod trav.mm : 4.00  
Speed 1/min : 1105...1135  
4th speed 1/min : 1300  
C-rod trav.mm : 0.30...1.40

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 21...29  
Setting point w/out aux. spring  
Speed 1/min : 650  
Contr.-rod trav.mm: 5.7

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 650  
C-rod trav.mm : 5.60...5.80

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1180  
C-rod trav.mm : 10.80...11.00  
2nd speed 1/min : 1050  
C-rod trav.mm : 11.70...11.90

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 950  
Del.quantity cm3/ : 127.0...131.0  
1000H.: (124.0...134.0)  
Dispersion cm3/ : 6.00  
1000H.: (9.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 130.0...150.0  
1000H.: (126.0...154.0)

#### Remarks:

##### APPLICATION

Combine-harvester

When adjusting and checking, adjust  
speed regulation to 1210...1220 l/min.  
Afterwards, readjust speed regulation  
to 1160...1170 l/min.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE 9,7 C  
 Edition : 10.86  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 886 700  
 Injection pump  
 Pump designation : PE6P110A721RS3102  
 Governor  
 Governor design. : RSV250...1200P1A516  
 Customer-spec. information  
 Customer : STEYR  
 Engine : WD 615.84  
 1st version kW : 191.0  
 Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : -  
 Calibrating nozzle-holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test inj. tubing : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1200  
 -----  
 Contr.-rod trav.mm: 12.70...12.80  
 -----  
 Del.quantity cm3/ : 15.4...15.7  
 -----  
 100H.: (-)  
 -----  
 Dispersion cm3/ : 0.4  
 -----  
 100H.: (0.75)  
 -----  
 2nd speed 1/min: 250  
 Contr.-rod trav. m: 7.00...7.20  
 Del.quantity cm3/ : 1.7...2.2  
 100H.: (-)  
 Dispersion cm3/ : 0.45  
 100H.: 0.75)

## SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed 1/min: 800  
 Contr.-rod travelmm: 0.30...0.70

Governor-spring reload  
 Notch setting x : ?

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1200  
 Charge press. hPa : 700  
 Del.quantity cm3/ : 154.0...157.0  
 1000H.: (151.5...159.5)  
 Dispersion cm3/ : 4.0  
 1000H.: (7.5)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 62...70

## Testing:

1st c-rod trav.mm : 11.70  
 Speed 1/min : 1240...1250  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1310...1340  
 3rd c-rod trav.mm : 0.30...1.40  
 Speed 1/min : 1430

## LOWEST RATED SPEED I

Control-lever  
position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 6.60  
Speed 1/min : 250  
C-rod trav.mm : 7.00...7.20  
C-rod trav.mm : 2.00  
Speed 1/min : 490...550

compensator (LDA,ADA,ALDA)

1st version  
Setting  
Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 12.70...12.80

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.20...10.30  
2nd pressure hPa : 470  
C-rod trav.mm : 12.10...12.20  
3rd pressure hPa : 300  
C-rod trav.mm : 10.60...10.80

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 700  
Speed 1/min : 700  
Del.quantity cm3/ : 150.0...154.0  
1000H.: (147.0...157.0)  
Dispersion cm3/ : -  
1000H.: (-)  
Charge press. hPa : -  
Speed 1/min : 700  
Del.quantity cm3/ : 102.0...105.0  
1000H.: (99.5...107.5)  
Dispersion cm3/ : -  
1000H.: (-)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 190.0...220.0  
1000H.: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VAL 7,2 A  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 076 056  
Injection pump  
Pump designation : PES6P110A320RS505  
EP type number : 0 412 016 072  
Governor  
Governor design. : RSV325...1150POA522  
Governor no. : 0 421 833 242

Customer-spec. information  
Customer : VALMET

Engine : 612 DSJ

1st version kW : 165.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
: (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm3/ : 13.8...14.1

100H.: (13.5...14.3)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 325.0

Contr.-rod trav. m: 7.1...7.3

Del.quantity cm3/ : 1.2...1.6

100H.: (0.9...1.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 4.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 700

Del.quantity cm3/ : 138.0...141.0

1000H.: (135.5...143.5)

Dispersion cm3/ : 4.00

1000H.: (7.50)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 36...44

Testing:

1st c-rod trav.mm : 11.00

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1290...1310

4th speed 1/min : 1460

C-rod trav.mm : 0.30...1.40

#### LOWEST RATED SPEED I

Control-lever

position degrees: 17...25

Setting point w/out aux. spring

Speed 1/min : 325

Contr.-rod trav.mm: 6.7

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.60

Speed 1/min : 325

C-rod trav.mm : 7.10...7.30

C-rod trav.mm : 2.00

Speed 1/min : 460...520

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 700

C-rod trav.mm : 12.00...12.10

2nd speed 1/min : 1150

C-rod trav.mm : 11.90...12.10

compensator (LDA,ADA,ALDA)

#### 1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 12.00...12.10

#### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.40...10.50

2nd pressure hPa : 400

C-rod trav.mm : 11.50...11.60

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 102.0...105.0

1000H.: (99.5...107.5)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 200.0...220.0

1000H.: (196.0...224.0)

#### LOW IDLE

Speed 1/min : 325

Contr.-rod trav.mm: 7.10...7.30

Del.quantity cm3/ : 12.0...16.0

1000H.: (9.5...18.5)

Dispersion cm3/ : 3.00

1000H.: (6.00)

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90 mm

On activation of the starting solenoid, the start position must be reached.

#### APPLICATION

Tractor (tractor engines)

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 V  
Edition : 09.03.87  
Superceeded : 9.84  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 803  
Injection pump  
Pump designation : PE6P120A72ORS7004  
EP type number : 0 412 626 801  
Governor  
Governor design. : RQ750PA528  
Governor no. : 0 421 801 126

Customer-spec. information  
Customer : SAAB-SCANIA

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 1 688 901 019  
Opening  
pressure, bar : 207...210  
Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar : 25...27  
Date of mfg. : 141

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00  
Date of mfg. : < 052

Prestroke mm : 4.40...4.50  
                  : (4.35...4.55)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
Contr.-rod trav.mm: 12.80...12.90  
Del.quantity cm3/ : 20.9...21.1  
                  100H.: (20.6...21.4)  
Dispersion cm3/ : 0.6  
                  100H.: (0.9)

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 600  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 209.0...211.0  
                  1000H.: (206.0...214.0)  
Dispersion cm3/ : 6.00  
                  1000H.: (9.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 21...29

## Testing:

1st c-rod trav.mm : 11.80  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 784...797  
4th speed 1/min : 850  
C-rod trav.mm : 0.30...1.00

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

HIGH IDLE  
Contr.-rod trav.mm: 4.90...5.10  
Dispersion cm<sup>3</sup>/ : 4.00  
1000H.: (7.00)

Remarks:

: DS11 43, 44, 45  
ADDITIONAL INFORMATION 11 42, 45

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

Check and set without ROBO diaphragm

Scania test specifications taken over  
on Aug. 8, 1983  
For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine:  
DS 11 - 17° before TDC  
DSI 11 - 16° before TDC  
Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 V2  
Edition : 09.03.87  
Superceeded : 9.84  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 804  
Injection pump  
Pump designation : PE6P120A72ORS7004  
EP type number : 0 412 626 801  
Governor  
Governor design. : RQ900PAS28  
Governor no. : 0 421 801 127

Customer-spec. information  
Customer : SAAB-SCANIA

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 1 688 901 019  
Opening  
pressure, bar : 207...210  
Perforated-plate  
diameter mm : 0,8  
Test inj. tubing : 1 680 750 015  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Date of mfg. : 141

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00  
Date of mfg. : < 052

Prestroke mm : 4.40...4.50  
                  : (4.35...4.55)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 850  
Contr.-rod trav.mm: 12.80...12.90  
Del.quantity cm3/ : 20.7...20.9  
                  100H.: (20.4...21.2)  
Dispersion cm3/ : 0.6  
                  100H.: (0.9)

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 600  
Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 850  
Del.quantity cm3/ : 207.0...209.0  
                  1000H.: (204.0...212.0)  
Dispersion cm3/ : 6.00  
                  1000H.: (9.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 22...30

## Testing:

1st c-rod trav.mm : 11.80  
Speed 1/min : 900...905  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 941...955  
4th speed 1/min : 1000  
C-rod trav.mm : 0.00...1.00

## STARTING FUEL DELIVERY

Speed 1/min : 100



Del.quantity cm3/ : 240.0...290.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

HIGH IDLE

Contr.-rod trav.mm: 4.90...5.10

Dispersion cm3/ : 4.00

1000H.: (7.00)

Remarks:

: DS11 43, 44, 45

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on Aug. 18, 1983

Engine model DS 11 - 17° before top  
dead center.

Engine model DSI 11 - 16° before top  
dead center.

Firing sequence of engine:

1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 V1  
 Edition : 09.03.87  
 Superseded : 9.84  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 646 805  
 Injection pump  
 Pump designation : PE6P120A72ORS7004  
 EP type number : 0 412 626 801  
 Governor  
 Governor design. : RQ1050PA528  
 Governor no. : 0 421 801 128

Customer-spec. information  
 Customer : SAAB-SCANIA

Engine : DS11 43,DS111 45

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Contr.-rod trav.mm: 9.00...12.00

F20

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1000  
 -----  
 Contr.-rod trav.mm: 12.80...12.90  
 -----  
 Del.quantity cm3/ : 21.4...21.6  
 -----  
 100H.: (21.1...21.9)  
 -----  
 Dispersion cm3/ : 0.6  
 -----  
 100H.: (0.9)

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1000  
 Del.quantity cm3/ : 214.0...216.0  
 1000H.: (211.0...219.0)  
 Dispersion cm3/ : 6.00  
 1000H.: (9.00)

## HIGHEST RATED SPEED

Testing:  
 1st c-rod trav.mm : 11.80  
 Speed 1/min : 1050...1055  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1085...1095  
 4th speed 1/min : 1150  
 C-rod trav.mm : 0.00...1.00

## STARTING FUEL DELIVERY

Speed 1/min : 100  
 Del.quantity cm3/ : 240.0...290.0  
 1000H.: (-)  
 Contr.-rod trav.mm: 20.00...21.00

HIGH IDLE  
 Contr.-rod trav.mm: 4.90...5.10  
 Dispersion cm3/ : 4.00  
 1000H.: (7.00)

Remarks:  
 ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 3.0...3.1 mm.

Check and set without R0B0 diaphragm

Scania test specifications taken over  
on Aug. 18, 1983  
For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine:  
DS 11 - 17° before TDC  
DSI 11 - 16° before TDC  
Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,OU13  
 Edition : 09.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 646 817  
 Injection pump  
 Pump designation : PE6P120A720RS7001  
 EP type number : 0 412 626 800  
 Governor  
 Governor design. : RQV275...1000PA539-4  
 Governor no. : 0 421 813 432

Customer-spec. information  
 Customer : SCANIA

Engine : DS11 15

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.20...13.30

Del.quantity cm3/ : 19.9...20.1

100H.: (19.6...20.4)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 275.0

Contr.-rod trav. m: 4.4...4.6

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 275

Sleeve travel mm: 0.90...1.00

2nd speed 1/min: 350

Sleeve travel mm: 1.80...2.70

3rd speed 1/min: 430

Sleeve travel mm: 3.40...4.40

4th speed 1/min: 500

Sleeve travel mm: 4.80...5.00

5th speed 1/min: 1040

Sleeve travel mm: 8.00...8.10

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1090

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 199.0...201.0

1000H.: (196.0...204.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 58...66

Testing:

1st c-rod trav.mm : 12.20  
Speed 1/min : 1040...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1190...1220  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever  
position degrees: 4...12

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5.90  
Speed 1/min : 275  
C-rod trav.mm : 4.40...4.60  
C-rod trav.mm : 2.00  
Speed 1/min : 320...380

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11.60...11.70  
2nd pressure hPa : 420  
C-rod trav.mm : 12.80...12.90  
3rd pressure hPa : 290  
C-rod trav.mm : 11.90...12.10

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900  
Speed 1/min : 1000  
Del.quantity cm3/ : 193.0...201.0  
1000H.: (191.0...203.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 160.0...164.0  
1000H.: (158.0...166.0)

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 275  
Contr.-rod trav.mm: 4.40...4.60  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without R080 diaphragm

Scania test specifications taken over  
on Aug. 18, 1983  
For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 17° before  
TDC

Firing sequence of engine:  
1-5-3-6-2-4.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : SCA 11,0U11  
Edition : 09.03.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 646 819  
  
Injection pump  
Pump designation : PE6P120A72ORS7001  
EP type number : 0 412 626 800  
Governor  
Governor design. : RQ200/1100PA713  
Governor no. : 0 421 801 262

Customer-spec. information  
Customer : SCANIA

Engine : DS11 25,26

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>2</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 11.70...11.80  
-----  
Del.quantity cm3/ : 16.1...16.3  
-----  
100H.: (15.8...16.6)  
-----  
Dispersion cm3/ : 0.5  
-----  
100H.: (0.8)  
-----

2nd speed 1/min: 225.0  
Contr.-rod trav. m: 4.9...5.1  
Del.quantity cm3/ : 1.3...1.7  
100H.: (-)  
Dispersion cm3/ : 0.3  
100H.: (0.6)

**SLEEVE POSITION**

Control-lever position  
Degree: -1  
Speed 1/min: 600  
Contr.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
Speed 1/min: 700  
Charge press. hPa : 900  
Del.quantity cm3/ : 161.0...163.0  
1000H.: (158.0...166.0)  
Dispersion cm3/ : 5.00  
1000H.: (8.00)

**HIGHEST RATED SPEED**

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 16.0

Testing:  
1st c-rod trav.mm : 10.70  
Speed 1/min : 1145...1160  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1290...1320  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 225

Contr.-rod trav.mm: 4.5

### Testing:

Speed 1/min : 100

C-rod trav.mm min : 5.90

Speed 1/min : 225

C-rod trav.mm : 4.40...4.60

C-rod trav.mm : 2.00

Speed 1/min : 300...340

compensator (LDA,ADA,ALDA)

### 1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 11.70...11.80

### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.40...10.50

2nd pressure hPa : 220

C-rod trav.mm : 11.40...11.50

3rd pressure hPa : 165

C-rod trav.mm : 10.50...10.70

## FUEL-DELIVERY CHARACTERISTICS

### 1st version

Charge press. hPa : 900

Speed 1/min : 1100

Del.quantity cm3/ : 163.0...171.0

1000H.: (161.0...173.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 120.0...124.0

1000H.: (118.0...126.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 240.0...290.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 225

Contr.-rod trav.mm: 4.40...4.60

### Remarks:

Because of flattening, set the spring

F25

preload on new delivery-valve holders  
to 2.9...3.1 mm.

## ADDITIONAL INFORMATION

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring  
preload on new delivery-valve holders  
to 3.0...3.1 mm.

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on May 17, 1984

Start of delivery - engine:

DS11 25 - 15° before TDC

DS11 26 - 11° before TDC

Firing sequence of engine:

1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0U12  
 Edition : 12.09.86  
 Superseded : 8.85  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 646 819 W  
 Injection pump  
 Pump designation : PE6P120A72ORS7001W  
 EP type number : 0 412 626 800  
 Governor  
 Governor design. : RQ200/1100PA713  
 Governor no. : 0 421 801 262

Customer-spec. information  
 Customer : SCANIA

Engine : DS11 28

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
 -----  
 Contr.-rod trav.mm: 12.60...12.70  
 -----  
 Del.quantity cm3/ : 18.0...18.2  
 -----  
 100H.: (17.7...18.5)  
 -----  
 Dispersion cm3/ : 0.6  
 -----  
 100H.: (0.9)  
 -----

2nd speed 1/min: 225.0  
 Contr.-rod trav. m: 4.4...4.6  
 Del.quantity cm3/ : 1.1...1.5  
 100H.: (-)  
 Dispersion cm3/ : 0.3  
 100H.: (0.6)

## SLEEVE POSITION

Control-lever position  
 Degree: 45...47  
 Speed 1/min: 600  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 700  
 Charge press. hPa : 500  
 Del.quantity cm3/ : 180.0...182.0  
 1000H.: (177.0...185.0)  
 Dispersion cm3/ : 6.00  
 1000H.: (9.00)

## HIGHEST RATED SPEED

Setting point:  
 Speed 1/min : 600  
 Contr.-rod trav.mm: 16.5

Testing:  
 1st c-rod trav.mm : 11.60  
 Speed 1/min : 1145...1160  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1270...1300  
 4th speed 1/min : 1400  
 C-rod trav.mm : 0.00...1.00



## LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 225  
Contr.-rod trav.mm: 4.5

### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5.90  
Speed 1/min : 225  
C-rod trav.mm : 4.40...4.60  
C-rod trav.mm : 2.00  
Speed 1/min : 300...340

compensator (LDA,ADA,ALDA)

### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 500  
Contr.-rod trav.mm: 12.60...12.70

### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.30...10.40  
2nd pressure hPa : 220  
C-rod trav.mm : 11.40...11.50  
3rd pressure hPa : 165  
C-rod trav.mm : 10.50...10.70

## FUEL-DELIVERY CHARACTERISTICS

### 1st version

Charge press. hPa : 500  
Speed 1/min : 1100  
Del.quantity cm3/ : 178.0...186.0  
1000H.: (176.0...188.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 120.0...124.0  
1000H.: (118.0...126.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.40...4.60  
Del.quantity cm3/ : 11.0...15.0  
1000H.: (-)

Dispersion cm3/ : 3.00  
1000H.: (6.00)

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

## ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on Aug. 30, 1984  
Start of delivery - engine: 11° before  
TDC  
Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,1 A  
 Edition : 09.03.87  
 Superceeded : 2.86  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 646 828  
 Injection pump  
 Pump designation : PE6P120A72ORS7015  
 EP type number : 0 412 626 810  
 Governor  
 Governor design. : RQV200...1000PA768  
 Governor no. : 0 421 813 504

Customer-spec. information  
 Customer : SCANIA

Engine : DSC11 03

## TEST BENCH REQUIREMENTS

Calibrating-gil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 14.30...14.40

Del.quantity cm3/ : 21.8...22.0

100H.: (21.5...22.3)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 4.8...5.0

Del.quantity cm3/ : 1.5...1.9

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.30...1.50

2nd speed 1/min: 270

Sleeve travel mm: 1.90...2.10

3rd speed 1/min: 360

Sleeve travel mm: 2.60...3.00

4th speed 1/min: 1040

Sleeve travel mm: 8.40...8.60

5th speed 1/min: 1160

Sleeve travel mm: 10.10...10.30

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 218.0...220.0

1000H.: (215.0...223.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

### Testing:

1st c-rod trav.mm : 13.30

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1150...1180

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

### Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.30

Speed 1/min : 225

C-rod trav.mm : 4.80...5.00

C-rod trav.mm : 2.00

Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 14.30...14.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 12.50...12.60

2nd pressure hPa : 430

C-rod trav.mm : 13.70...13.80

3rd pressure hPa : 280

C-rod trav.mm : 12.70...12.90

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 1000

Del.quantity cm3/ : 208.0...216.0

1000H.: (206.0...218.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 175.0...179.0

1000H.: (173.0...181.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 240.0...290.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

### Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

## ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without R0B0 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on May 3, 1985  
Start of delivery - engine: 17° before  
TDC  
Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,1 A1  
Edition : 13.11.86  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 828 Z  
Injection pump  
Pump designation : PE6P120A72ORS7015Z  
EP type number : 0 412 626 810  
Governor  
Governor design. : RQV200...1000PA768  
Governor no. : 0 421 813 504

Customer-spec. information  
Customer : SCANIA

Engine : DSC11 06

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.10...13.20

Del.quantity cm3/ : 18.9...19.1

100H.: (18.6...19.4)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 4.8...5.0

Del.quantity cm3/ : 1.5...1.9

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.30...1.50

2nd speed 1/min: 270

Sleeve travel mm: 1.90...2.10

3rd speed 1/min: 360

Sleeve travel mm: 2.60...3.00

4th speed 1/min: 1040

Sleeve travel mm: 8.40...8.60

5th speed 1/min: 1160

Sleeve travel mm: 10.10...10.30

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 189.0...191.0

1000H.: (186.0...194.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

### Testing:

1st c-rod trav.mm : 12.10

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1150...1180

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

### Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.30

Speed 1/min : 225

C-rod trav.mm : 4.80...5.00

C-rod trav.mm : 2.00

Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 13.10...13.20

### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 12.50...12.60

2nd pressure hPa : 320

C-rod trav.mm : 12.90...13.00

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 1000

Del.quantity cm3/ : 184.0...192.0

1000H.: (182.0...194.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 175.0...179.0

1000H.: (173.0...181.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100

G03

Del.quantity cm3/ : 240.0...290.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 225

Contr.-rod trav.mm: 4.70...4.90

### Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

## ADDITIONAL INFORMATION

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without ROBO diaphragm

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on May 3, 1985

Start of delivery - engine: 17° before TDC

Firing sequence of engine: 1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 9,0 F  
Edition : 17.12.86  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 833  
Injection pump  
Pump designation : PE6P120A32ORS7102J  
EP type number : 0 412 626 812  
Governor  
Governor design. : RQV200...1100PA795  
Governor no. : 0 421 813 536

Customer-spec. information  
Customer : SCANIA

Engine : DS9 01

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 9.00...9.10  
-----  
Del.quantity cm3/ : 10.6...10.8  
-----  
100H.: (10.3...11.1)  
-----  
Dispersion cm3/ : 0.5  
-----  
100H.: (0.8)  
-----

2nd speed 1/min: 225.0  
Contr.-rod trav. m: 5.1...5.3  
Del.quantity cm3/ : 1.5...1.9  
Dispersion cm3/ : 0.3  
100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225  
Sleeve travel mm: 0.90...1.10  
2nd speed 1/min: 350  
Sleeve travel mm: 1.80...2.20  
3rd speed 1/min: 800  
Sleeve travel mm: 5.20...5.50  
4th speed 1/min: 1150  
Sleeve travel mm: 7.90...8.10  
5th speed 1/min: 1210  
Sleeve travel mm: 8.50...8.80

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1200  
Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 106.0...108.0  
1000H.: (103.0...111.0)  
Dispersion cm3/ : 5.00  
1000H.: (8.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 40...48

Testing:  
1st c-rod trav.mm : 8.00  
Speed 1/min : 1140...1150  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1190...1220  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I  
Control-lever  
position degrees: 8...16

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 6.30  
Speed 1/min : 225  
C-rod trav.mm : 4.80...5.00  
C-rod trav.mm : 2.00  
Speed 1/min : 280...340

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.80...5.00

Remarks:  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 3.0...3.1 mm.

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on March 19, 1986  
Start of delivery - engine: 15° before  
TDC  
Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 A3  
Edition : 21.05.87  
Superceeded : 8.85  
Calibrating oil : ISO-4113

Combination no. : 0 402 648 801

Injection pump  
Pump designation : PE8P120A920/4LS7002  
EP type number : 0 412 628 800  
Governor  
Governor design. : RQV250...1000PA547  
Governor no. : 0 421 813 270

Customer-spec. information  
Customer : SCANIA

Engine : DS14 06

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Date of mfg. : 141

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00  
Date of mfg. : < 052  
Prestroke mm : 4.40...4.50  
: (4.35...4.55)  
Cam sequence : 1- 2- 7- 3- 4- 5-  
6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-  
SD ang. spacing°CS: 270-315  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.20...13.30

Del.quantity cm3/ : 18.7...18.9

100H.: (18.4...19.2)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm3/ : 1.0...1.4

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.30...1.40

2nd speed 1/min: 340

Sleeve travel mm: 2.50...2.80

3rd speed 1/min: 550

Sleeve travel mm: 4.00...4.30

4th speed 1/min: 1045

Sleeve travel mm: 8.40...8.60

5th speed 1/min: 1150

Sleeve travel mm: 9.80...10.20

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version



Speed 1/min: 700  
Charge press. hPa : 900  
Del.quantity cm3/ : 187.0...189.0  
1000H.: (184.0...192.0)  
Dispersion cm3/ : 6.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 58...66

#### Testing:

1st c-rod trav.mm : 12.20  
Speed 1/min : 1040...1050  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1140...1170  
3rd c-rod trav.mm : 4.00  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5.90  
Speed 1/min : 225  
C-rod trav.mm : 4.40...4.60  
C-rod trav.mm : 2.00  
Speed 1/min : 310...370

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.20...13.30

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11.30...11.40  
2nd pressure hPa : 350  
C-rod trav.mm : 12.80...12.90  
3rd pressure hPa : 230  
C-rod trav.mm : 11.90...12.10

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 900  
Speed 1/min : 1000  
Del.quantity cm3/ : 184.0...192.0  
1000H.: (182.0...194.0)  
Charge press. hPa : -

G07

Speed 1/min : 500  
Del.quantity cm3/ : 137.0...141.0  
1000H.: (135.0...145.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.40...4.60

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on Aug. 19, 1983  
Engine start of delivery: 18° BTDC

Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 A1  
Edition : 06.10.86  
Superceeded : 10.84  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 802  
Injection pump  
Pump designation : PE8P120A920LS7002S  
EP type number : 0 412 628 800  
Governor  
Governor design. : RQV200...10SOPAS47  
Governor no. : 0 421 813 293

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DS14 07

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 7- 3- 4- 5-  
6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 13.00...13.10  
-----  
Del.quantity cm3/ : 18.3...18.5  
-----  
100H.: (18.0...18.8)  
-----  
Dispersion cm3/ : 0.6  
-----  
100H.: (0.9)  
-----

2nd speed 1/min: 225.0  
Contr.-rod trav. m: 4.4...4.6  
Del.quantity cm3/ : 1.0...1.4  
100H.: (-)  
Dispersion cm3/ : 0.3  
100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225  
Sleeve travel mm: 1.20...1.40  
2nd speed 1/min: 280  
Sleeve travel mm: 1.80...2.10  
3rd speed 1/min: 350  
Sleeve travel mm: 2.40...2.80  
4th speed 1/min: 1090  
Sleeve travel mm: 8.40...8.60  
5th speed 1/min: 1200  
Sleeve travel mm: 9.80...10.10

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1100  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Charge press. hPa : 900  
Del.quantity cm3/ : 183.0...185.0  
1000H.: (180.0...188.0)

Dispersion cm3/ : 6.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 57...65

#### Testing:

1st c-rod trav.mm : 12.00  
Speed 1/min : 1090...1100  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1180...1210  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5.90  
Speed 1/min : 225  
C-rod trav.mm : 4.40...4.60  
C-rod trav.mm : 2.00  
Speed 1/min : 310...370

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.00...13.10

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11.30...11.40  
2nd pressure hPa : 350  
C-rod trav.mm : 12.80...12.90  
3rd pressure hPa : 230  
C-rod trav.mm : 11.90...12.10

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 900  
Speed 1/min : 1000  
Del.quantity cm3/ : 176.0...184.0  
1000H.: (174.0...186.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 137.0...141.0  
1000H.: (135.0...143.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.40...4.60  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (-)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

#### Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without R0B0 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on Aug. 19, 1983  
Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 D  
Edition : 12.09.86  
Superceeded : 8.84  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 807  
Injection pump  
Pump designation : PE8P120A920/4LS7008  
EP type number : 0 412 628 803  
Governor  
Governor design. : RQV200...950PA547-1  
Governor no. : 0 421 813 360

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 01

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
: (4.45...4.65)

Contr.-rod trav.mm: 6.00...8.00

Cam sequence : 1- 2- 7- 3- 4- 5-  
6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 7.00...13.90  
& c-rod trav max. : 21.00  
Difference ° CS : 1.45...2.15

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm3/ : 19.7...19.9

100H.: (19.4...20.2)

Dispersion cm3/ : 0.7

100H.: (1.0)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 4.7...4.9

Del.quantity cm3/ : 1.4...1.8

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.30...1.50

2nd speed 1/min: 270

Sleeve travel mm: 1.90...2.10

3rd speed 1/min: 360

Sleeve travel mm: 2.60...3.00

4th speed 1/min: 990

Sleeve travel mm: 7.80...8.00

5th speed 1/min: 1120

Sleeve travel mm: 9.40...9.60

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Charge press. hPa : 900  
Del. quantity cm3/ : 197.0...199.0  
1000H.: (194.0...202.0)  
Dispersion cm3/ : 7.00  
1000H.: (10.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 56...64

#### Testing:

1st c-rod trav.mm : 12.90  
Speed 1/min : 990...1000  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1110...1140  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.20  
Speed 1/min : 225  
C-rod trav.mm : 4.70...4.90  
C-rod trav.mm : 2.00  
Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.90...14.00

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11.00...11.10  
2nd pressure hPa : 335  
C-rod trav.mm : 13.10...13.20  
3rd pressure hPa : 215  
C-rod trav.mm : 11.60...11.80

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 900  
Speed 1/min : 950  
Del. quantity cm3/ : 190.0...198.0  
1000H.: (188.0...200.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 146.0...150.0  
1000H.: (144.0...152.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.70...4.90  
Del. quantity cm3/ : 14.0...18.0  
1000H.: (-)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

#### Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-i-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on Aug. 19, 1983  
Engine firing sequence: 1-5-4-2-6-3-7-8

Start of delivery - engine: 22° before  
TDC at control-rod travel = 6.0...  
8.0 mm



1st version  
Speed 1/min: 700  
Charge press. hPa : 900  
Del.quantity cm3/ : 197.0...199.0  
1000H.: (194.0...202.0)  
Dispersion cm3/ : 7.00  
1000H.: (10.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 55...63

#### Testing:

1st c-rod trav.mm : 12.90  
Speed 1/min : 990...1000  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1170...1200  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.20  
Speed 1/min : 275  
C-rod trav.mm : 4.70...4.90  
C-rod trav.mm : 2.00  
Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.90...14.00

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11.00...11.10  
2nd pressure hPa : 335  
C-rod trav.mm : 13.10...13.20  
3rd pressure hPa : 215  
C-rod trav.mm : 11.60...11.80

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 900  
Speed 1/min : 950  
Del.quantity cm3/ : 190.0...198.0  
1000H.: (188.0...200.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 146.0...150.0  
1000H.: (144.0...152.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 275  
Contr.-rod trav.mm: 4.70...4.90  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

#### Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without R0B0 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.



Scania test specifications taken over  
on Nov. 2, 1983  
Start of delivery - engine: 22° before  
TDC at control-rod travel = 6.0...  
8.0 mm  
Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 D2  
Edition : 12.09.86  
Superceeded : 4.86  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 815  
Injection pump  
Pump designation : PE8P120A920/4LS7008X  
EP type number : 0 412 628 812  
Governor  
Governor design. : RQV200...950PA547-6  
Governor no. : 0 421 813 499

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 02

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
                  : (4.45...4.65)

Contr.-rod trav.mm: 6.00...8.00

Cam sequence : 1- 2- 7- 3- 4- 5-  
                  6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 7.00...12.80  
& c-rod tray max. : 21.00  
Difference ° CS : 1.05...1.75

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.80...12.90

Del.quantity cm3/ : 18.3...18.5

100H.: (18.0...18.8)

Dispersion cm3/ : 0.7

100H.: (1.0)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 4.7...4.9

Del.quantity cm3/ : 1.4...1.8

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.30...1.40

2nd speed 1/min: 260

Sleeve travel mm: 1.70...1.90

3rd speed 1/min: 360

Sleeve travel mm: 2.60...3.00

4th speed 1/min: 1000

Sleeve travel mm: 7.90...9.00

5th speed 1/min: 1110

Sleeve travel mm: 9.30...9.50

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Charge press. hPa : 900  
Del.quantity cm3/ : 183.0...185.0  
1000H.: (180.0...188.0)  
Dispersion cm3/ : 7.00  
1000H.: (10.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 55...63

#### Testing:

1st c-rod trav.mm : 11.80  
Speed 1/min : 990...1000  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1090...1120  
4th speed 1/min : 1250  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.20  
Speed 1/min : 225  
C-rod trav.mm : 4.70...4.90  
C-rod trav.mm : 2.00  
Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 12.80...12.90

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11.00...11.10  
3rd pressure hPa : ?  
C-rod trav.mm : 11.60...11.80

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 900  
Speed 1/min : 950  
Del.quantity cm3/ : 177.0...185.0  
1000H.: (175.0...187.0)  
Charge press. hPa : -  
Speed 1/min : 500

Del.quantity cm3/ : 146.0...150.0  
1000H.: (144.0...152.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.70...4.90  
Del.quantity cm3/ : 14.0...18.0  
1000H.: (-)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

#### Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without R0B0 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on May 3, 1985

Start of delivery - engine: 22° before  
TDC at control-rod travel = 6.0...  
8.0 mm

Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 U4  
Edition : 05.06.87  
Superceeded : 11.84  
Calibrating oil : ISO-4113  
Combination no. : 0 402 676 800  
Injection pump  
Pump designation : PE6P120A72ORS7001  
EP type number : 0 412 626 800  
Governor  
Governor design. : RSV350...1100P1/481  
Governor no. : 0 421 833 121

Customer-spec. information  
Customer : SAAB-SCANIA

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 1 688 901 019  
Opening  
pressure, bar : 207...210  
Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Date of mfg. : 141

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00  
Date of mfg. : < 052

Prestroke mm : 4.40...4.50  
                  : (4.35...4.55)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
Contr.-rod trav.mm: 13.20...13.30  
Del.quantity cm3/ : 19.9...20.1  
100H.: (19.6...20.4)  
Dispersion cm3/ : 0.6  
100H.: (0.9)  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 4.4...4.6  
Del.quantity cm3/ : 1.3...1.7  
100H.: (-)  
Dispersion cm3/ : 0.3  
100H.: (0.6)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.00

Governor-spring reload  
Notch setting x : 6.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 199.0...201.0  
1000H.: (196.0...204.0)  
Dispersion cm3/ : 6.00  
1000H.: (9.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 62...70

Testing:  
1st c-rod trav.mm : 12.20  
Speed 1/min : 1090...1100  
2nd c-rod trav.mm : 4.00

Speed 1/min : 1170...1200  
4th speed 1/min : 1300  
C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 27...35  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 4.0  
Speed 1/min : 350  
C-rod trav.mm : 3.90...4.10  
C-rod trav.mm : 2.00  
Speed 1/min : 440...500

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1000  
Del.quantity cm3/ : 193.0...201.0  
1000H.: (190.0...204.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 4.40...4.60  
Del.quantity cm3/ : 13.0...17.0  
1000H.: (-)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

#### Remarks:

: DS11 40, 41, 42  
: DSI11 40, 44

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on Aug. 18, 1983  
Start of delivery on engine.

Engine model DS 11 - 17° before top  
dead center.

Engine model DSI 11 - 16° before top  
dead center.

Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 9,0 A  
 Edition : 15.05.87  
 Superceeded : 3.86  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 746 800  
 Injection pump  
 Pump designation : PE6P12QA32ORS7102  
 EP type number : 0 412 626 804  
 Governor  
 Governor design. : RQV200...1100PA712-1  
 Governor no. : 0 421 813 448

Customer-spec. information  
 Customer : SCANIA

Engine : DS9 01

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
 -----  
 Contr.-rod trav.mm: 12.00...12.10  
 -----  
 Del.quantity cm3/ : 16.3...16.5  
 -----  
 100H.: (16.0...16.8)  
 -----  
 Dispersion cm3/ : 0.6  
 -----  
 100H.: (0.9)  
 -----

2nd speed 1/min: 225.0  
 Contr.-rod trav. m: 4.6...5.2  
 Del.quantity cm3/ : 1.5...1.9  
 100H.: (1.3...2.1)  
 Dispersion cm3/ : 0.3  
 100H.: (0.6)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225  
 Sleeve travel mm: 1.10...1.50  
 2nd speed 1/min: 350  
 Sleeve travel mm: 2.60...3.20  
 3rd speed 1/min: 700  
 Sleeve travel mm: 4.50...5.10  
 4th speed 1/min: 1145  
 Sleeve travel mm: 7.50...7.70  
 5th speed 1/min: 1290  
 Sleeve travel mm: 8.80...9.20

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 1160  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 700  
 Charge press. hPa : 900  
 Del.quantity cm3/ : 163.0...165.0  
 1000H.: (160.0...168.0)  
 Dispersion cm3/ : 6.00  
 1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 54...62

Testing:

1st c-rod trav.mm : 11.00

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1275...1305

4th speed 1/min : 1400

C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.30

Speed 1/min : 225

C-rod trav.mm : 4.60...5.20

C-rod trav.mm : 2.00

Speed 1/min : 300...360

## CONSTANT REGULATION

Speed 1/min : 225...365

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 11.15...11.55

2nd pressure hPa : 420

C-rod trav.mm : 11.70...11.80

3rd pressure hPa : 380

C-rod trav.mm : 11.50...11.70

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 1100

Del.quantity cm3/ : 160.0...168.0

1000H.: (158.0...170.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 141.0...145.0

1000H.: (139.0...147.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 240.0...290.0

1000H.: (236.0...294.0)

Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 225

Contr.-rod trav.mm: 4.60...5.20

Del.quantity cm3/ : 15.0...19.0

1000H.: (13.0...21.0)

Dispersion cm3/ : 3.00

1000H.: (6.00)

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

## ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on Oct. 4, 1984  
Start of delivery - engine: 15° before



TDC  
Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 9,0 C  
Edition : 15.05.87  
Superceeded : 12.85  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 746 801  
  
Injection pump  
Pump designation : PE6P120A32ORS7103  
EP type number : 0 412 626 805  
Governor  
Governor design. : RQV200...1100PA712  
Governor no. : 0 421 813 442

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC 9 01

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
                  : (4.45...4.65)  
Contr.-rod trav.mm: 6.00...8.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 7.00...12.50  
& c-rod tray max. : 21.00  
Difference ° CS : 1.00...1.70

## BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 12.50...12.60  
-----  
Del.quantity cm3/ : 17.8...18.0  
-----  
100H.: (17.5...18.3)  
-----  
Dispersion cm3/ : 0.7  
-----  
100H.: (1.0)  
-----  
2nd speed 1/min: 225.0  
Contr.-rod trav. m: 4.4...5.0  
Del.quantity cm3/ : 1.5...1.9  
100H.: (1.3...2.1)  
Dispersion cm3/ : 0.3  
100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225  
Sleeve travel mm: 1.10...1.50  
2nd speed 1/min: 350  
Sleeve travel mm: 2.60...3.20  
3rd speed 1/min: 700  
Sleeve travel mm: 4.50...5.10  
4th speed 1/min: 1145  
Sleeve travel mm: 7.50...7.70  
5th speed 1/min: 1300  
Sleeve travel mm: 8.90...9.30

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1150  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700  
Charge press. hPa : 900  
Del.quantity cm3/ : 178.0...180.0  
1000H.: (175.0...183.0)  
Dispersion cm3/ : 7.00  
1000H.: (10.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 55...63

#### Testing:

1st c-rod trav.mm : 11.50  
Speed 1/min : 1140...1150  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1285...1315  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

#### Testing:

Speed 1/min : 125  
C-rod trav.mm min : 6.10  
Speed 1/min : 225  
C-rod trav.mm : 4.40...5.00

#### CONSTANT REGULATION

Speed 1/min : 225...365

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 12.50...12.60

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.10...10.50  
2nd pressure hPa : 435  
C-rod trav.mm : 11.90...12.00  
3rd pressure hPa : 335  
C-rod trav.mm : 10.60...10.80

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 900  
Speed 1/min : 1100  
Del.quantity cm3/ : 177.0...185.0  
1000H.: (175.0...187.0)  
Charge press. hPa : -

G25

Speed 1/min : 500  
Del.quantity cm3/ : 138.0...142.0  
1000H.: (136.0...144.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.40...5.00  
Del.quantity cm3/ : 15.0...19.0  
1000H.: (13.0...21.0)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

#### Remarks:

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring preload on new delivery-valve holders to 3.0...3.1 mm.

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

Scania test specifications taken over  
on Oct. 4, 1984  
Start of delivery - engine: 18° before  
TDC at control-rod travel =

6.00...8.00 mm

Firing sequence of engine:

1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 A 14  
 Edition : 10.04.87  
 Superseded : 11.85  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 444 110  
 Injection pump  
 Pump designation : PES4MW100/72ORS1127  
 EP type number : 0 413 404 103  
 Governor  
 Governor design. : RQV300...1300MW48-1  
 Governor no. : 0 420 083 084

Customer-spec. information  
 Customer : DB

Engine : OM 364 A

1st version kW : 85.0  
 Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-pil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300  
 -----  
 Contr.-rod trav.mm: 11.10...11.20  
 -----  
 Del.quantity cm3/ : 8.5...8.7  
 -----  
 100H.: (8.3...8.9)  
 -----  
 Dispersion cm3/ : 0.35  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 7.8...7.9  
 Del.quantity cm3/ : 1.0...1.4  
 100H.: (0.8...1.6)  
 Dispersion cm3/ : 0.35  
 100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 1330  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1300  
 Del.quantity cm3/ : 85.0...87.0  
 1000H.: (83.0...89.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 50...58

## Testing:

1st c-rod trav.mm : 10.10  
 Speed 1/min : 1340...1350  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1430...1460  
 4th speed 1/min : 1550  
 C-rod trav.mm : 9.00...11.00

## LOWEST RATED SPEED I

Control-lever  
 position degrees: 17...25  
 Setting point w/out aux. spring

Speed 1/min : 300  
Contr.-rod trav.mm: 7.85

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.50  
Speed 1/min : 300  
C-rod trav.mm : 7.80...7.90

CONSTANT REGULATION

Speed 1/min : 330...600

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300  
C-rod trav.mm : 11.10...11.20  
2nd speed 1/min : 750  
C-rod trav.mm : 11.90...12.10  
3rd speed 1/min : 585  
C-rod trav.mm : 12.10...12.30  
4th speed 1/min : 1000  
C-rod trav.mm : 11.10...11.30

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750  
Del.quantity cm3/ : 84.5...86.5  
1000H.: (82.5...88.5)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 585  
Del.quantity cm3/ : 80.5...83.5  
1000H.: (78.5...86.5)  
Dispersion cm3/ : 5.00  
1000H.: 7.00

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.80...7.90  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (8.0...16.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 A 19  
 Edition : 10.04.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 444 112  
 Injection pump  
 Pump designation : PES4MW100/72ORS1127  
 EP type number : 0 413 404 103  
 Governor  
 Governor design. : RQV300...1300MW48-2  
 Governer no. : 0 420 083 110

Customer-spec. information  
 Customer : DB

Engine : OM 364 A

1st version kW : 85.0  
 Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Contr.-rod trav.mm: 9.00...12.00

H01

Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300  
 -----  
 Contr.-rod trav.mm: 11.10...11.20  
 -----  
 Del.quantity cm3/ : 8.5...8.7  
 -----  
 100H.: (8.3...8.9)  
 -----  
 Dispersion cm3/ : 0.35  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 7.8...7.9  
 Del.quantity cm3/ : 1.0...1.4  
 100H.: (0.8...1.6)  
 Dispersion cm3/ : 0.35  
 100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 1330  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1300  
 Del.quantity cm3/ : 85.0...87.0  
 1000H.: (83.0...89.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 50...58

## Testing:

1st c-rod trav.mm : 10.10  
 Speed 1/min : 1340...1350  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1430...1460  
 4th speed 1/min : 1550  
 C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever  
 position degrees: 17...25  
 Setting point w/out aux. spring

Speed 1/min : 300  
Contr.-rod trav.mm: 7.85

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.50  
Speed 1/min : 300  
C-rod trav.mm : 7.80...7.90

CONSTANT REGULATION

Speed 1/min : 330...600

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300  
C-rod trav.mm : 11.10...11.20  
2nd speed 1/min : 750  
C-rod trav.mm : 11.80...12.10  
3rd speed 1/min : 585  
C-rod trav.mm : 12.10...12.30  
4th speed 1/min : 1000  
C-rod trav.mm : 11.10...11.30

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750  
Del.quantity cm3/ : 84.5...86.5  
1000H.: (82.5...88.5)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 585  
Del.quantity cm3/ : 80.5...83.5  
1000H.: (78.5...86.5)  
Dispersion cm3/ : 5.00  
1000H.: 7.00

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.80...7.90  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (8.0...16.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 A 20  
Edition : 02.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 444 113  
  
Injection pump  
Pump designation : PES4MW100/72ORS1151  
EP type number : 0 413 404 104  
Governor  
Governor design. : RQV300...1300MW50-3  
Governor no. : 0 420 083 129

Customer-spec. information  
Customer : DB

Engine : OM 364 LA

1st version kW : 100.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 12.60...12.70  
-----  
Del.quantity cm3/ : 9.8...10.0  
-----  
100H.: (9.6...10.2)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.8...6.9  
Del.quantity cm3/ : 1.0...1.4  
100H.: (0.7...1.6)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 1340  
Sleeve travel mm: 8.50...8.70  
2nd speed 1/min: 1450  
Sleeve travel mm: 9.50...9.90  
3rd speed 1/min: 500  
Sleeve travel mm: 2.70...3.30  
4th speed 1/min: 300  
Sleeve travel mm: 1.30...1.70

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1340  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Charge press. hPa : 700  
Del.quantity cm3/ : 98.0...100.0  
1000H.: (96.0...102.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 49...57

Testing:

1st c-rod trav.mm : 11.60  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1445...1475  
4th speed 1/min : 1550  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever  
position degrees: 16...24  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.8

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.40  
Speed 1/min : 300  
C-rod trav.mm : 6.80...6.90

CONSTANT REGULATION

Speed 1/min : 320...550

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 200  
Contr.-rod trav.mm: 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.50...10.60  
2nd pressure hPa : 335  
C-rod trav.mm : 12.10...12.40  
3rd pressure hPa : 700  
C-rod trav.mm : 12.60...12.70

SWITCH-OVER POINT

Speed 1/min : 220 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700  
Speed 1/min : 600  
Del.quantity cm3/ : 82.5...85.5  
1000H.: (80.0...88.5)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500

Del.quantity cm3/ : 49.0...51.0  
1000H.: (47.0...53.0)

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 85.0...95.0  
1000H.: (82.0...98.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.80...6.90  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (7.5...16.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 A 12  
Edition : 02.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 124  
Injection pump  
Pump designation : PES6MW100/720RS1101  
EP type number : 0 413 406 102  
Governor  
Governor design. : RQV300/1300MW34  
Governor no. : 0 420 083 032

Customer-spec. information  
Customer : DB

Engine : OM362LA

1st version kW : 141.0  
Speed 1/min: 2600

### TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30  
: (3.15...3.35)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.90...12.00

Del.quantity cm3/ : 9.4...9.6

100H.: (9.2...9.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.1

Del.quantity cm3/ : 1.0...1.4

100H.: (0.8...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1300

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

##### 1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm3/ : 94.5...96.5

1000H.: (92.5...98.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

##### 1st version

Control-lever

position degrees: 57...65

##### Testing:

1st c-rod trav.mm : 10.90

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1460...1490

4th speed 1/min : 1600

C-rod trav.mm : 0.10...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 16...24

H06

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6.0

##### Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.60

Speed 1/min : 300

C-rod trav.mm : 6.00...6.10

C-rod trav.mm : 2.00

Speed 1/min : 460...520

compensator (LDA,ADA,ALDA)

##### 1st version

##### Setting

Speed 1/min : 500

Pressure hPa : -

Contr.-rod trav.mm: 10.20...10.30

##### Measurement

Speed 1/min : 500

1st pressure hPa : 100

C-rod trav.mm : 0.40...0.50

2nd pressure hPa : 125

C-rod trav.mm : 0.90...1.10

3rd pressure hPa : 700

C-rod trav.mm : 11.90...12.00

##### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 700

Speed 1/min : 800

Del.quantity cm3/ : 92.0...96.0

1000H.: (90.0...98.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 54.5...56.5

1000H.: (52.5...58.5)

Dispersion cm3/ : 3.50

1000H.: 6.00

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 10.5...14.5  
1000H.: (8.0...17.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 A 11  
Edition : 02.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 446 134  
  
Injection pump  
Pump designation : PES6MW100/72ORS1101  
EP type number : 0 413 406 102  
Governor  
Governor design. : RQV300/1300MW44  
Governor no. : 0 420 083 053

Customer-spec. information  
Customer : DB

Engine : OM362LA

1st version kW : 141.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30  
: (3.15...3.35)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.90...12.00

Del.quantity cm3/ : 9.4...9.6

100H.: (9.2...9.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.1

Del.quantity cm3/ : 1.0...1.4

100H.: (0.8...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1330

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

##### 1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm3/ : 94.5...96.5

1000H.: (92.5...98.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

##### 1st version

Control-lever

position degrees: 60...68

##### Testing:

1st c-rod trav.mm : 10.90

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1435...1465

4th speed 1/min : 1600

C-rod trav.mm : 0.10...1.00

#### LOWEST RATED SPEED 1

Control-lever

position degrees: 7...15

H09

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6.0

##### Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.60

Speed 1/min : 300

C-rod trav.mm : 6.00...6.10

C-rod trav.mm : 2.00

Speed 1/min : 520...580

compensator (LDA,ADA,ALDA)

##### 1st version

##### Setting

Speed 1/min : 500

Pressure hPa : -

Contr.-rod trav.mm: 10.00...10.10

##### Measurement

Speed 1/min : 500

1st pressure hPa : 100

C-rod trav.mm : 0.40...0.50

2nd pressure hPa : 125

C-rod trav.mm : 0.90...1.10

3rd pressure hPa : 700

C-rod trav.mm : 11.90...12.00

##### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 700

Speed 1/min : 800

Del.quantity cm3/ : 92.0...96.0

1000H.: (90.0...98.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 51.5...53.5

1000H.: (49.5...55.5)

Dispersion cm3/ : 3.50

1000H.: 6.00

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 10.5...14.5  
1000H.: (8.0...17.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 8,7 0  
Edition : 02.06.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 403 446 143

Injection pump  
Pump designation : PES6MW100/72ORS1101  
EP type number : 0 413 406 102  
Governor  
Governor design. : RQV300/1300MW44-1  
Governor no. : 0 420 083 064

Customer-spec. information  
Customer : DB

Engine : OM362LA

1st version kW : 141.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30  
: (3.15...3.35)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 11.90...12.00  
-----  
Del.quantity cm3/ : 9.4...9.6  
-----  
100H.: (9.2...9.8)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.0...6.1  
Del.quantity cm3/ : 1.0...1.4  
100H.: (0.8...1.7)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1330  
Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Charge press. hPa : 700  
Del.quantity cm3/ : 94.5...96.5  
1000H.: (92.5...98.5)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 60...68

#### Testing:

1st c-rod trav.mm : 10.90  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1435...1465  
4th speed 1/min : 1600  
C-rod trav.mm : 0.10...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 7...15

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.0

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.60  
Speed 1/min : 300  
C-rod trav.mm : 6.00...6.10  
C-rod trav.mm : 2.00  
Speed 1/min : 520...580

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 10.20...10.30

#### Measurement

Speed 1/min : 500  
1st pressure hPa : 100  
C-rod trav.mm : 0.40...0.50  
2nd pressure hPa : 125  
C-rod trav.mm : 0.90...1.10  
3rd pressure hPa : 700  
C-rod trav.mm : 11.90...12.00

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 700  
Speed 1/min : 800  
Del.quantity cm3/ : 92.0...96.0  
1000H.: (90.0...98.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 54.5...56.5  
1000H.: (52.5...58.5)  
Dispersion cm3/ : 3.50  
1000H.: 6.00

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 10.5...14.5  
1000H.: (8.0...17.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

Set intermediate-speed stop (ZDA) to  
contact at 1300 1/min, then turn back  
1/2 turn.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 9  
Edition : 03.04.87  
Superceeded : 4.86  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 158  
Injection pump  
Pump designation : PES6MW100/72ORS1131  
EP type number : 0 413 406 123  
Governor  
Governor design. : RQV300...1300MW50-1  
Governor no. : 0 420 083 089

Customer-spec. information  
Customer : DB

Engine : OM 366 LA

1st version kW : 150.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 12.10...12.20  
-----  
Del.quantity cm3/ : 9.65...10.25  
-----  
100H.: (9.85...10.45)  
-----  
Dispersion cm3/ : 0.35  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.1...6.2  
Del.quantity cm3/ : 0.9...1.3  
100H.: (0.65...1.55)  
Dispersion cm3/ : 0.35  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1340  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Charge press. hPa : 700  
Del.quantity cm3/ : 96.5...102.5  
1000H.: (98.5...104.5)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 48...56

Testing:  
1st c-rod trav.mm : 11.10  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1440...1470  
4th speed 1/min : 1550  
C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever  
position degrees: 11...19

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.1

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.60  
Speed 1/min : 300  
C-rod trav.mm : 6.10...6.20

CONSTANT REGULATION

Speed 1/min : 350...550

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 170  
Contr.-rod trav.mm: 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.50...10.60  
2nd pressure hPa : 225  
C-rod trav.mm : 11.70...12.00  
3rd pressure hPa : 700  
C-rod trav.mm : 12.10...12.20

SWITCH-OVER POINT

Speed 1/min : 220 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700  
Speed 1/min : 600  
Del.quantity cm3/ : 85.0...89.0  
1000H.: (83.0...91.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 54.0...56.0  
1000H.: (52.0...58.0)

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 71.0...81.0  
1000H.: (68.0...84.0)

LOW IDLE

Speed 1/min : 300

H15

Contr.-rod trav.mm: 6.10...6.20  
Del.quantity cm3/ : 9.00...13.0  
1000H.: (6.5...15.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet :  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 446 166  
  
Injection pump  
Pump designation : PES6MW100/72ORS1133  
EP type number : 0 413 406 126  
Governor  
Governor design. : RQ325...1325MW65  
Governor no. : 0 420 082 018

Customer-spec. information  
Customer : KHD

Engine : BF 6L 913 BW

1st version kW : 124.0  
Speed 1/min: 2650

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 P68 134 3009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1325  
-----  
Contr.-rod trav.mm: 11.00...11.10  
-----  
Del.quantity cm<sup>3</sup>/ : 10.1...10.3  
-----  
100H.: (9.9...10.5)  
-----  
Dispersion cm<sup>3</sup>/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 325.0  
Contr.-rod trav. m: 7.0...7.1  
Del.quantity cm<sup>3</sup>/ : 1.1...1.5  
100H.: (0.9...1.7)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

#### SLEEVE POSITION

Control-lever position  
Degree: -2  
Speed 1/min: 700  
Contr.-rod travelmm: 19.20...20.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1325  
Charge press. hPa : 700  
Del.quantity cm<sup>3</sup>/ : 101.0...103.0  
1000H.: (99.0...105.0)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 26...34

Setting point:  
Speed 1/min : 700  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 10.00  
Speed 1/min : 1375...1385  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1445...1475  
4th speed 1/min : 1550  
C-rod trav.mm : 0.10...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 8...16  
Setting point w/out aux. spring  
Speed 1/min : 325  
Contr.-rod trav.mm: 7.0

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.60  
Speed 1/min : 325  
C-rod trav.mm : 7.00...7.10

#### CONSTANT REGULATION

Speed 1/min : 340...450

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 11.00...11.10

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.50...9.60  
2nd pressure hPa : 350  
C-rod trav.mm : 10.10...10.40  
3rd pressure hPa : 450  
C-rod trav.mm : 10.70...10.80

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 700  
Speed 1/min : 850  
Del.quantity cm<sup>3</sup>/ : 93.0...97.0  
1000H.: (91.0...99.0)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm<sup>3</sup>/ : 57.0...59.0  
1000H.: (55.0...61.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...140.0  
1000H.: (117.0...143.0)

#### LOW IDLE

Speed 1/min : 325  
Contr.-rod trav.mm: 7.00...7.10  
Del.quantity cm3/ : 11.0...15.0  
1000H.: (9.0...17.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 25  
 Edition : 13.05.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 446 170  
 Injection pump  
 Pump designation : PES6MW100/72ORS1144  
 EP type number : 0 413 406 138  
 Governor  
 Governor design. : RQV300...1300MW69  
 Governor no. : 0 420 083 102

Customer-spec. information  
 Customer : DB

Engine : OM366A  
 1st version kW : 125.0  
 Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Calibrating nozzle-holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300  
 -----  
 Contr.-rod trav.mm: 11.00...11.10  
 -----  
 Del.quantity cm3/ : 8.2...8.4  
 -----  
 100H.: (8.0...8.6)  
 -----  
 Dispersion cm3/ : 0.3  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 7.8...7.9  
 Del.quantity cm3/ : 1.0...1.4  
 100H.: (0.9...1.5)  
 Dispersion cm3/ : 0.3  
 100H.: (0.5)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 1340  
 Sleeve travel mm: 8.40...8.60  
 2nd speed 1/min: 1450  
 Sleeve travel mm: 8.70...9.10  
 3rd speed 1/min: 600  
 Sleeve travel mm: 3.90...4.50  
 4th speed 1/min: 300  
 Sleeve travel mm: 0.80...1.30

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 1350  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1300  
 Del.quantity cm3/ : 82.0...84.0  
 1000H.: (80.0...86.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 50...58

Testing:  
1st c-rod trav.mm : 10.00  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1425...1455  
4th speed 1/min : 1550  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 7.8

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 10.20  
Speed 1/min : 300  
C-rod trav.mm : 7.80...7.90

#### CONSTANT REGULATION

Speed 1/min : 330...500

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 750  
C-rod trav.mm : 11.90...12.00  
3rd speed 1/min : 700  
C-rod trav.mm : 12.00...12.20  
4th speed 1/min : 1100  
C-rod trav.mm : 11.00...11.20

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750  
Del.quantity cm3/ : 79.0...82.0  
1000H.: (76.5...84.5)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.80...7.90

Del.quantity cm3/ : 10.0...14.0  
1000H.: (9.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 20  
Edition : 10.04.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 177  
Injection pump  
Pump designation : PES6MW100/72ORS1139  
EP type number : 0 413 406 134  
Governor  
Governor design. : RQV300...1300MW48  
Governor no. : 0 420 083 066

Customer-spec. information  
Customer : DB

Engine : OM366A

1st version kW : 125,0  
Speed 1/min: 2600

### TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

### START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 8.2...8.4

100H.: (8.0...8.6)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm3/ : 1.0...1.4

100H.: (0.9...1.5)

Dispersion cm3/ : 0.35

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.50...8.70

2nd speed 1/min: 1450

Sleeve travel mm: 9.30...9.70

3rd speed 1/min: 500

Sleeve travel mm: 2.70...3.30

4th speed 1/min: 300

Sleeve travel mm: 1.20...1.70

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1350

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

##### 1st version

Speed 1/min: 1300

Del.quantity cm3/ : 82.0...84.0

1000H.: (80.0...86.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

##### 1st version

Control-lever

position degrees: 50...58

H22

#### Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1425...1455

4th speed 1/min : 1550

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 18...26

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 7.85

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.70

Speed 1/min : 300

C-rod trav.mm : 7.80...7.90

#### CONSTANT REGULATION

Speed 1/min : 330...500

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 800

C-rod trav.mm : 11.80...12.00

3rd speed 1/min : 585

C-rod trav.mm : 12.00...12.20

4th speed 1/min : 1100

C-rod trav.mm : 11.00...11.10

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800

Del.quantity cm3/ : 81.0...83.0

1000H.: (79.0...85.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Speed 1/min : 585

Del.quantity cm3/ : 77.5...80.5

1000H.: (75.0...83.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 300

Contr.-rod trav.mm: 7.80...7.90  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (9.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 26  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 177  
Injection pump  
Pump designation : PES6MW100/72ORS1144  
EP type number : 0 413 406 138  
Governor  
Governor design. : RQV300...1300MW48  
Governor no. : 0 420 083 066

Customer-spec. information  
Customer : DB

Engine : OM366A

1st version kW : 125.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 11.00...11.10  
-----  
Del.quantity cm3/ : 8.2...8.4  
-----  
100H.: (8.0...8.6)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 7.8...7.9  
Del.quantity cm3/ : 1.0...1.4  
100H.: (0.9...1.5)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1340  
Sleeve travel mm: 8.50...8.70  
2nd speed 1/min: 1450  
Sleeve travel mm: 9.30...9.70  
3rd speed 1/min: 500  
Sleeve travel mm: 2.70...3.30  
4th speed 1/min: 300  
Sleeve travel mm: 1.20...1.70

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1350  
Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

##### 1st version

Speed 1/min: 1300  
Del.quantity cm3/ : 82.0...84.0  
1000H.: (80.0...86.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...58

H25

#### Testing:

1st c-rod trav.mm : 10.00  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1425...1455  
4th speed 1/min : 1550  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 7.8

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.70  
Speed 1/min : 300  
C-rod trav.mm : 7.80...7.90

#### CONSTANT REGULATION

Speed 1/min : 330...500

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1300  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 800  
C-rod trav.mm : 11.80...12.00  
3rd speed 1/min : 585  
C-rod trav.mm : 12.00...12.20  
4th speed 1/min : 1100  
C-rod trav.mm : 11.00...11.10

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm3/ : 81.0...83.0  
1000H.: (79.0...85.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 585  
Del.quantity cm3/ : 77.5...80.5  
1000H.: (75.0...83.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.80...7.90  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (9.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:



## BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 27  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 446 179  
  
Injection pump  
Pump designation : PES6MW100/72ORS1144  
EP type number : 0 413 406 138  
Governor  
Governor design. : RQV300...1300MW74  
Governor no. : 0 420 083 112

Customer-spec. information  
Customer : DB

Engine : OM366LA

1st version kW : 127.0  
Speed 1/min: 2600

### TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

### START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 7.6...7.8

100H.: (7.4...8.0)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm3/ : 1.0...1.4

100H.: (0.9...1.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.50...8.70

2nd speed 1/min: 1450

Sleeve travel mm: 9.50...9.70

3rd speed 1/min: 700

Sleeve travel mm: 3.90...4.50

4th speed 1/min: 300

Sleeve travel mm: 1.30...1.70

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1335

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm3/ : 81.0...83.0

1000H.: (79.0...85.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...58

H28

#### Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1425...1455

4th speed 1/min : 1550

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 18...26

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 7.8

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.70

Speed 1/min : 300

C-rod trav.mm : 7.80...7.90

#### CONSTANT REGULATION

Speed 1/min : 330...600

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 11.00...11.10

2nd speed 1/min : 750

C-rod trav.mm : 11.70...11.80

3rd speed 1/min : 1125

C-rod trav.mm : 11.40...11.50

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm3/ : 68.0...70.0

1000H.: (65.0...73.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 300

Contr.-rod trav.mm: 7.80...7.90

Del.quantity cm3/ : 10.0...14.0

1000H.: (9.0...15.0)

Dispersion    cm<sup>3</sup>/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 34  
Edition : 10.04.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 184  
Injection pump  
Pump designation : PES6MW100/72ORS1144  
EP type number : 0 413 406 138  
Governor  
Governor design. : RQV300...1300MW48-3  
Governor no. : 0 420 083 121

Customer-spec. information  
Customer : DB

Engine : OM366A

1st version kW : 125.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 19.00...21.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 10.90...11.00  
-----  
Del.quantity cm3/ : 8.0...8.2  
-----  
100H.: (7.8...8.4)  
-----  
Dispersion cm3/ : 0.35  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 7.8...7.9  
Del.quantity cm3/ : 1.0...1.4  
100H.: (0.9...1.5)  
Dispersion cm3/ : 0.35  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1340  
Sleeve travel mm: 8.50...8.70  
2nd speed 1/min: 1450  
Sleeve travel mm: 9.30...9.70  
3rd speed 1/min: 500  
Sleeve travel mm: 2.70...3.30  
4th speed 1/min: 300  
Sleeve travel mm: 1.20...1.70

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1350  
Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Del.quantity cm3/ : 80.0...82.0  
1000H.: (78.0...84.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...58

J03

#### Testing:

1st c-rod trav.mm : 9.90  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1425...1455  
4th speed 1/min : 1550  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 7.8

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.30  
Speed 1/min : 300  
C-rod trav.mm : 7.80...7.90

#### CONSTANT REGULATION

Speed 1/min : 330...500

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1300  
C-rod trav.mm : 10.90...11.00  
2nd speed 1/min : 800  
C-rod trav.mm : 11.60...11.80  
3rd speed 1/min : 585  
C-rod trav.mm : 11.80...12.00

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm3/ : 77.5...79.5  
1000H.: (75.5...81.5)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 585  
Del.quantity cm3/ : 74.5...77.5  
1000H.: (72.0...80.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.80...7.90

Del.quantity cm3/ : 10.0...14.0  
1000H.: (9.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 A 2  
Edition : 17.12.86  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 466 103  
  
Injection pump  
Pump designation : PES6MW100/120RS1137  
EP type number : 0 413 406 131  
Governor  
Governor design. : RSV425...1100MW2A319  
-2  
Governor no. : 0 420 085 062  
  
Customer-spec. information  
Customer : CUMMINS/US  
  
Engine : 6 CTA-8.3 L  
  
1st version kW : 188.0  
Speed 1/min: 2200  
  
TEST BENCH REQUIREMENTS  
  
Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 047  
  
Inlet press., bar : 1.50  
  
Calibrating nozzle-holder  
assembly : 1 688 901 017  
  
Opening  
pressure, bar : 207...210  
  
Test inj. tubing : 1 680 750 008  
  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600  
  
(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_ \_ \_ \_  
  
START OF DELIVERY  
Test pressure, bar: 30...32  
  
Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 14.10...14.20

Del.quantity cm3/ : 14.2...14.4

100H.: (14.0...14.6)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm3/ : 1.9...2.3

100H.: (1.6...2.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

#### SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...1.00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm3/ : 142.0...144.0

1000H.: (140.0...146.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 42...50

Testing:

1st c-rod trav.mm : 13.10

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1215...1245

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

J06

#### Control-lever

position degrees: 18...26

Setting point w/out aux. spring

Speed 1/min : 425

Contr.-rod trav.mm: 7.8

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 425

C-rod trav.mm : 7.80...7.90

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 14.10...14.20

2nd speed 1/min : 750

C-rod trav.mm : 14.80...14.90

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm3/ : 148.5...150.5

1000H.: (146.5...152.5)

Dispersion cm3/ : 5.00

1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 125.0...145.0

1000H.: (122.0...148.0)

Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 425

Contr.-rod trav.mm: 7.80...7.90

Del.quantity cm3/ : 19.0...23.0

1000H.: (16.5...25.5)

Dispersion cm3/ : 3.50

1000H.: (5.50)

Remarks:

Start-of-delivery mark at 10<sup>o</sup> cam  
rotation angle after start of delivery,  
cylinder 1

Starting/full-load transition speed  
from holding magnet = 500 1/min.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 A 3  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 466 104  
Injection pump  
Pump designation : PES6MW100/12ORS1137  
EP type number : 0 413 406 131  
Governor  
Governor design. : RSV400...1050MW2A319  
-3  
Governor no. : 0 420 085 074

Customer-spec. information  
Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 165.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
: (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm3/ : 12.4...12.6

100H.: (12.2...12.8)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 400.0

Contr.-rod trav. m: 6.9...7.0

Del.quantity cm3/ : 1.6...2.0

100H.: (1.3...2.2)

Dispersion cm3/ : 0.35

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1050

Del.quantity cm3/ : 124.0...126.0

1000H.: (122.0...128.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 40...48

Testing:

1st c-rod trav.mm : 11.10

Speed 1/min : 1090...1100

2nd c-rod trav.mm : 4.00

Speed 1/min : 1150...1180

4th speed 1/min : 1250

C-rod trav.mm : 0.30...1.70

## LOWEST RATED SPEED I

Control-lever  
position degrees: 19...27  
Setting point w/out aux. spring  
Speed 1/min : 400  
Contr.-rod trav.mm: 6.95

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 400  
C-rod trav.mm : 6.90...7.00

SET IDLE AUXILIARY SPRING  
Contr.-rod trav.mm: 4.00

TORQUE CONTROL  
Torque-control curve - 1st version  
1st speed 1/min : 1050  
C-rod trav.mm : 12.10...12.20  
2nd speed 1/min : 750  
C-rod trav.mm : 14.20...14.30

FUEL-DELIVERY CHARACTERISTICS  
Speed 1/min : 750  
Del.quantity cm3/ : 151.0...153.0  
1000H.: (149.0...155.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 125.0...145.0  
1000H.: (122.0...148.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 400  
Contr.-rod trav.mm: 6.90...7.00  
Del.quantity cm3/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:  
Start-of-delivery mark at 10° cam  
rotation angle after start of delivery,  
cylinder 1  
Starting/full-load transition speed  
from holding magnet = 500 1/min.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 A 4  
 Edition : 13.05.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 466 105  
 Injection pump  
 Pump designation : PES6MW100/120RS1137  
 EP type number : 0 413 406 131  
 Governor  
 Governor design. : RSV400...1100MW2A319  
 -4  
 Governor no. : 0 420 085 080

Customer-spec. information  
 Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 171.5  
 Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 017

Opening  
 pressure, bar : 207...210

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 13.2...13.4

100H.: (13.0...13.6)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 400.0

Contr.-rod trav. m: 7.0...7.1

Del.quantity cm3/ : 1.6...2.0

100H.: (1.3...2.2)

Dispersion cm3/ : 0.3

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm3/ : 132.5...134.5

1000H.: (130.5...136.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 40...48

Testing:

1st c-rod trav.mm : 11.60

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1200...1230

4th speed 1/min : 1300

C-rod trav.mm : 0.30...1.70

## LOWEST RATED SPEED I

Control-lever  
position degrees: 16...24  
Setting point w/out aux. spring  
Speed 1/min : 400  
Contr.-rod trav.mm: 7.0

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 400  
C-rod trav.mm : 7.00...7.10

SET IDLE AUXILIARY SPRING  
Contr.-rod trav.mm: 4.00

TORQUE CONTROL  
Torque-control curve - 1st version  
1st speed 1/min : 1100  
C-rod trav.mm : 12.60...12.70  
2nd speed 1/min : 750  
C-rod trav.mm : 13.70...13.80

FUEL-DELIVERY CHARACTERISTICS  
Speed 1/min : 750  
Del.quantity cm3/ : 141.0...143.0  
1000H.: (139.0...145.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 125.0...145.0  
1000H.: (122.0...148.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 400  
Contr.-rod trav.mm: 7.00...7.10  
Del.quantity cm3/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:  
Start-of-delivery mark at 10° cam  
rotation angle after start of delivery,  
cylinder 1  
Starting/full-load transition speed  
from holding magnet = 500 1/min.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 A 18  
 Edition : 13.05.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 474 002  
 Injection pump  
 Pump designation : PES4MW100/720RS1127  
 EP type number : 0 413 404 103  
 Governor  
 Governor design. : RSV350...1200MWOA322  
 Governor no. : 0 420 085 075

Customer-spec. information  
 Customer : DB

Engine : OM364A

1st version kW : 66.0  
 Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm3/ : 7.8...8.0

100H.: (7.6...8.2)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.8...7.4

Del.quantity cm3/ : 0.8...1.0

100H.: (0.6...1.4)

Dispersion cm3/ : 0.3

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 78.0...80.0

1000H.: (76.0...82.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 102...110

## Testing:

1st c-rod trav.mm : 10.70

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1322...1335

3rd c-rod trav.mm : 4.00

Speed 1/min : 1345...1375

4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70

## LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 350  
Contr.-rod trav.mm: 7.1

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 6.80...7.40  
C-rod trav.mm : 2.00  
Speed 1/min : 500...560

TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1200  
C-rod trav.mm : 11.70...11.80  
2nd speed 1/min : 600  
C-rod trav.mm : 12.60...12.80  
3rd speed 1/min : 700  
C-rod trav.mm : 12.60...12.80  
4th speed 1/min : 950  
C-rod trav.mm : 12.20...12.40

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm3/ : 68.0...70.0  
1000H.: (66.0...72.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 900  
Del.quantity cm3/ : 77.0...79.0  
1000H.: (75.0...81.0)  
Dispersion cm3/ : 5.00  
1000H.: 7.00

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 85.0...95.0  
1000H.: (82.0...98.0)

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.80...7.40  
Del.quantity cm3/ : 8.0...10.0  
1000H.: (6.0...14.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 29  
 Edition : 13.05.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 476 027  
 Injection pump  
 Pump designation : PES6MW100/72ORS1144  
 EP type number : 0 413 406 138  
 Governor  
 Governor design. : RSV350...1300MWOA316  
 Governor no. : 0 420 085 047

Customer-spec. information  
 Customer : DB

Engine : OM366A

1st version kW : 125.0  
 Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 10.70...10.80

Del.quantity cm3/ : 8.0...8.2

100H.: (7.8...8.4)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 7.0...7.6

Del.quantity cm3/ : 1.0...1.2

100H.: (0.8...1.4)

Dispersion cm3/ : 0.3

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 4.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm3/ : 80.0...82.0

1000H.: (78.0...84.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 54...61

Testing:

1st c-rod trav.mm : 9.70

Speed 1/min : 1340...1345

2nd c-rod trav.mm : 4.00

Speed 1/min : 1380...1393

3rd c-rod trav.mm : 4.00

Speed 1/min : 1400...1430

4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

C-rod trav.mm : 2.00

Speed 1/min : 445...505

#### SET IDLE AUXILIARY SPRING

Speed 1/min : 350

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 10.70...10.80

2nd speed 1/min : 700

C-rod trav.mm : 12.30...12.40

3rd speed 1/min : 825

C-rod trav.mm : 11.90...12.10

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700

Del.quantity cm3/ : 80.0...82.0

1000H.: (78.0...84.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Speed 1/min : 825

Del.quantity cm3/ : 80.5...82.5

1000H.: (77.5...85.5)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 7.00...7.60

Del.quantity cm3/ : 10.0...12.0

1000H.: (8.0...14.0)

Dispersion cm3/ : 3.50

1000H.: (5.00)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 30  
 Edition : 27.03.87  
 Superceeded : 11.85  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 476 029  
 Injection pump  
 Pump designation : PES6MW100/72ORS1124  
 EP type number : 0 413 406 118  
 Governor  
 Governor design. : RSV350...1200MW1A316  
 -1  
 Governor no. : 0 420 085 048

Customer-spec. information  
 Customer : DB

Engine : OM366A  
 1st version kW : 110.0  
 Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Calibrating nozzle-holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32  
 Prestroke min : 3.70...3.80  
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200  
 -----  
 Contr.-rod trav.mm: 9.80...9.90  
 -----  
 Del.quantity cm3/ : 7.6...7.8  
 -----  
 100H.: (7.4...8.0)  
 -----  
 Dispersion cm3/ : 0.3  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 350.0  
 Contr.-rod trav. m: 6.4...7.0  
 Del.quantity cm3/ : 1.0...1.2  
 100H.: (0.8...1.4)  
 Dispersion cm3/ : 0.3  
 100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed 1/min: 800  
 Cont.-rod travelmm: 0.30...1.00

Governor-spring reload  
 Notch setting x : 4.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1200  
 Del.quantity cm3/ : 76.0...78.0  
 1000H.: (74.0...80.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 52...60

Testing:  
 1st c-rod trav.mm : 8.80  
 Speed 1/min : 1240...1245  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1280...1293  
 3rd c-rod trav.mm : 4.00  
 Speed 1/min : 1300...1330  
 4th speed 1/min : 1360

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

C-rod trav.mm : 2.00

Speed 1/min : 465...525

#### SET IDLE AUXILIARY SPRING

Speed 1/min : 350

Contr.-rod trav.mm: 6.40...7.00

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 9.90...10.10

2nd speed 1/min : 750

C-rod trav.mm : 10.60...10.70

3rd speed 1/min : 950

C-rod trav.mm : 10.30...10.40

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 66.0...68.0

1000H.: (64.0...70.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Speed 1/min : 900

Del.quantity cm3/ : 76.0...78.0

1000H.: (73.0...81.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 6.40...7.00

Del.quantity cm3/ : 10.0...12.0

1000H.: (8.0...14.0)

Dispersion cm3/ : 3.50

1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 6,1 P  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 476 046  
Injection pump  
Pump designation : PES6MW100/32ORS1132  
EP type number : 0 413 406 124  
Governor  
Governor design. : RSV325...1400MW2A314  
-1  
Governor no. : 0 420 085 053

Customer-spec. information  
Customer : VOLVO-PENTA

Engine : TD 61 A

1st version kW : 147.0  
Speed 1/min: 2800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 2.00X6.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke min : 2.90...3.00  
: (2.85...3.05)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 10.90...11.00

Del.quantity cm3/ : 8.7...8.9  
100H.: (8.5...9.1)

Dispersion cm3/ : 0.3  
100H.: (0.6)

2nd speed 1/min: 325.0  
Contr.-rod trav. m: 6.0...6.1  
Del.quantity cm3/ : 1.2...1.6  
100H.: (0.9...1.8)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: 3  
Speed 1/min: 800  
Contr.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1000  
Charge press. hPa : 900  
Del.quantity cm3/ : 87.0...89.0  
1000H.: (85.0...91.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 54...62

## Testing:

1st c-rod trav.mm : 10.00  
Speed 1/min : 1440...1450  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1520...1540  
4th speed 1/min : 1650  
C-rod trav.mm : 0.30...1.70

## LOWEST RATED SPEED I

Control-lever

position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 325  
Contr.-rod trav.mm: 5.5

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 325  
C-rod trav.mm : 5.50...5.60

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 220  
Contr.-rod trav.mm: 10.00...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.80...9.90  
2nd pressure hPa : 330  
C-rod trav.mm : 10.20...10.50  
3rd pressure hPa : 900  
C-rod trav.mm : 10.90...11.00

FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 50.0...52.0  
1000H.: (48.0...54.0)

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...160.0  
1000H.: (137.0...163.0)  
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 325  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 12.0...16.0  
1000H.: (9.5...18.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 22  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 476 054  
Injection pump  
Pump designation : PES6MW100/72ORS1139  
EP type number : 0 413 406 134  
Governor  
Governor design. : RSV350...1200MW1A316  
-2  
Governor no. : 0 420 085 076

Customer-spec. information  
Customer : DB

Engine : OM366A  
1st version kW : 115.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000

Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200  
-----  
Contr.-rod trav.mm: 11.80...11.90  
-----  
Del.quantity cm3/ : 8.3...8.5  
-----  
100H.: (8.1...8.7)  
-----  
Dispersion cm3/ : 0.35  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 7.0...7.6  
Del.quantity cm3/ : 1.0...1.2  
100H.: (0.7...1.5)  
Dispersion cm3/ : 0.35  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.00

Governor-spring reload  
Notch setting x : 3.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1200  
Del.quantity cm3/ : 83.0...85.0  
1000H.: (81.0...87.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 64...72

Testing:  
1st c-rod trav.mm : 10.80  
Speed 1/min : 1240...1245  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1285...1298  
3rd c-rod trav.mm : 4.00  
Speed 1/min : 1335...1365  
4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 7.3

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 350

C-rod trav.mm : 7.00...7.60

C-rod trav.mm : 2.00

Speed 1/min : 515...585

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1200

C-rod trav.mm : 11.80...11.90

2nd speed 1/min : 750

C-rod trav.mm : 12.30...12.40

3rd speed 1/min : 1000

C-rod trav.mm : 11.90...12.10

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm3/ : 81.0...83.0

1000H.: (79.0...85.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 7.00...7.60

Del.quantity cm3/ : 10.0...12.0

1000H.: (7.0...15.0)

Dispersion cm3/ : 3.50

1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 31  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 476 054  
  
Injection pump  
Pump designation : PES6MW100/72ORS1144  
EP type number : 0 413 406 138  
Governor  
Governor design. : RSV350...1200MW1A316  
-2  
Governor no. : 0 420 085 076  
  
Customer-spec. information  
Customer : DB

Engine : OM366A  
  
1st version kW : 115.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 000  
  
Inlet press., bar : 1.50  
  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
  
Opening  
pressure, bar : 172...175  
  
Test inj. tubing : 1 680 750 008  
  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600  
  
(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32  
  
Prestroke min : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200  
-----  
Contr.-rod trav.mm: 11.80...11.90  
-----  
Del.quantity cm3/ : 8.3...8.5  
-----  
100H.: (8.1...8.7)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 7.0...7.6  
Del.quantity cm3/ : 1.0...1.2  
100H.: (0.7...1.5)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.00

Governor-spring reload  
Notch setting x : 3.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1200  
Del.quantity cm3/ : 83.0...85.0  
1000H.: (81.0...87.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 64...72

Testing:  
1st c-rod trav.mm : 10.80  
Speed 1/min : 1240...1245  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1285...1298  
3rd c-rod trav.mm : 4.00  
Speed 1/min : 1335...1365  
4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 7.3

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 350

C-rod trav.mm : 7.00...7.60

C-rod trav.mm : 2.00

Speed 1/min : 515...585

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1200

C-rod trav.mm : 11.80...11.90

2nd speed 1/min : 750

C-rod trav.mm : 12.30...12.40

3rd speed 1/min : 1000

C-rod trav.mm : 11.90...12.10

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm3/ : 81.0...83.0

1000H.: (79.0...85.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 7.00...7.60

Del.quantity cm3/ : 10.0...12.0

1000H.: (7.0...15.0)

Dispersion cm3/ : 3.50

1000H.: (5.00)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 23  
 Edition : 09.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 476 055  
 Injection pump  
 Pump designation : PES6MW100/72ORS1139  
 EP type number : 0 413 406 134  
 Governor  
 Governor design. : RSV350...1200MW1A316  
 -3  
 Governor no. : 0 420 085 077  
 Customer-spec. information  
 Customer : DB

Engine : OM366A

1st version kW : 92.0  
 Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 9.60...9.70

Del.quantity cm3/ : 6.6...6.8

100H.: (6.4...7.0)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.3...6.9

Del.quantity cm3/ : 1.0...1.2

100H.: (0.7...1.5)

Dispersion cm3/ : 0.35

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload  
 Notch setting x : 15.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 66.0...68.0

1000H.: (64.0...70.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 9.10

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1263...1276

3rd c-rod trav.mm : 4.00

Speed 1/min : 1290...1320

4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70  
Sth speed 1/min : 1240...1255  
C-rod trav.mm : 8.60

#### LOWEST RATED SPEED 1

Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.6

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 6.30...6.90  
C-rod trav.mm : 2.00  
Speed 1/min : 415...475

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1200  
C-rod trav.mm : 10.10...10.20  
2nd speed 1/min : 850  
C-rod trav.mm : 10.70...10.90  
3rd speed 1/min : 950  
C-rod trav.mm : 10.40...10.60

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm3/ : 68.0...70.0  
1000H.: (66.0...72.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.30...6.90  
Del.quantity cm3/ : 10.0...12.0  
1000H.: (7.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 32  
 Edition : 05.06.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 476 055  
 Injection pump  
 Pump designation : PES6MW100/720RS1144  
 EP type number : 0 413 406 138  
 Governor  
 Governor design. : RSV350...1200MW1A316  
 -3  
 Governor no. : 0 420 085 077

Customer-spec. information  
 Customer : DB

Engine : OM366A

1st version kW : 92.0  
 Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 9.60...9.70

Del.quantity cm3/ : 6.6...6.8

100H.: (6.4...7.0)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.3...6.9

Del.quantity cm3/ : 1.0...1.2

100H.: (0.7...1.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 15.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 66.0...68.0

1000H.: (64.0...70.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 9.10

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1263...1276

3rd c-rod trav.mm : 4.00

Speed 1/min : 1290...1320

4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70  
5th speed 1/min : 1240...1255  
C-rod trav.mm : 8.60

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.6

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 6.30...6.90  
C-rod trav.mm : 2.00  
Speed 1/min : 415...475

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1200  
C-rod trav.mm : 9.60...9.70  
2nd speed 1/min : 800  
C-rod trav.mm : 10.50...10.60  
3rd speed 1/min : 950  
C-rod trav.mm : 9.90...10.10

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm3/ : 68.0...70.0  
1000H.: (66.0...72.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.30...6.90  
Del.quantity cm3/ : 10.0...12.0  
1000H.: (7.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 24  
 Edition : 03.04.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 476 056  
 Injection pump  
 Pump designation : PES6MW100/72ORS1139  
 EP type number : 0 413 406 134  
 Governor  
 Governor design. : RSV350...1200MW1A316  
 -4  
 Governor no. : 0 420 085 078

Customer-spec. information  
 Customer : DB

Engine : OM366A

1st version kW : 100.0  
 Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness : 6.00X2.00X600  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 11.40...11.50

Del.quantity cm3/ : 7.5...7.7

100H.: (7.3...7.9)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.1...6.7

Del.quantity cm3/ : 1.0...1.2

100H.: (0.7...1.5)

Dispersion cm3/ : 0.35

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 3.50

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 75.0...77.0

1000H.: (73.0...79.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 51...59

Testing:

1st c-rod trav.mm : 10.50

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1271...1284

3rd c-rod trav.mm : 4.00

Speed 1/min : 1290...1320

4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70  
5th speed 1/min : 1240...1255  
C-rod trav.mm : 9.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.4

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 6.10...6.70  
C-rod trav.mm : 2.00  
Speed 1/min : 415...475

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1200  
C-rod trav.mm : 10.00...10.10  
2nd speed 1/min : 800  
C-rod trav.mm : 10.80...10.90  
3rd speed 1/min : 900  
C-rod trav.mm : 10.80...10.90  
4th speed 1/min : 1050  
C-rod trav.mm : 10.30...10.50

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm3/ : 73.0...75.0  
1000H.: (71.0...78.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.10...6.70  
Del.quantity cm3/ : 10.0...12.0  
1000H.: (7.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 33  
 Edition : 05.06.87  
 Superseded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 476 056  
 Injection pump  
 Pump designation : PES6MW100/72ORS1144  
 EP type number : 0 413 406 138  
 Governor  
 Governor design. : RSV350...1200MW1A316  
 -4  
 Governor no. : 0 420 085 078

Customer-spec. information  
 Customer : DB

Engine : OM366A

1st version kW : 100.0  
 Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 10.00...10.10

Del.quantity cm3/ : 7.5...7.7

100H.: (7.3...7.9)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.1...6.7

Del.quantity cm3/ : 1.0...1.2

100H.: (0.7...1.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 3.50

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 75.0...77.0

1000H.: (73.0...79.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 51...59

Testing:

1st c-rod trav.mm : 10.50

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1271...1284

3rd c-rod trav.mm : 4.00

Speed 1/min : 1290...1320

4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70  
5th speed 1/min : 1240...1255  
C-rod trav.mm : 9.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.4

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 6.10...6.70  
C-rod trav.mm : 2.00  
Speed 1/min : 415...475

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1200  
C-rod trav.mm : 10.00...10.10  
2nd speed 1/min : 800  
C-rod trav.mm : 10.90...11.00  
3rd speed 1/min : 900  
C-rod trav.mm : 10.90...11.00  
4th speed 1/min : 1050  
C-rod trav.mm : 10.30...10.50

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm3/ : 73.0...75.0  
1000H.: (71.0...78.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.10...6.70  
Del.quantity cm3/ : 10.0...12.0  
1000H.: (7.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13.4 D  
 Edition : 05.06.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 548 007  
 Injection pump  
 Pump designation : PE8MW100/72QLS1118  
 EP type number : 0 413 508 102  
 Governor  
 Governor design. : RQV300...1150MW56  
 Governor no. : 0 420 083 075

Customer-spec. information  
 Customer : KHD

Engine : BF8L513

1st version kW : 222.0  
 Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
 : (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

K03

Cam sequence : 1- 8- 7- 2- 6- 5-  
 4- 3

SD ang. spacing°CS: 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1150  
 -----  
 Contr.-rod trav.mm: 12.10...12.20  
 -----  
 Del.quantity cm3/ : 12.9...13.1  
 -----  
 100H.: (12.7...13.3)  
 -----  
 Dispersion cm3/ : 0.3  
 -----  
 100H.: (0.6)  
 -----

2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 6.9...7.0  
 Del.quantity cm3/ : 1.6...2.0  
 100H.: (1.3...2.2)  
 Dispersion cm3/ : 0.3  
 100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 1175  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1150  
 Charge press. hPa : 800  
 Del.quantity cm3/ : 129.0...131.0  
 1000H.: (127.0...133.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 51...59

Testing:  
 1st c-rod trav.mm : 12.60  
 Speed 1/min : 1190...1200  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1300...1330  
 4th speed 1/min : 1400  
 C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever  
position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.9  
C-rod trav.mm min : 8.50  
Speed 1/min : 300  
C-rod trav.mm : 6.90...7.00

#### CONSTANT REGULATION

Speed 1/min : 330...400

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150  
C-rod trav.mm : 13.60...13.70  
2nd speed 1/min : 700  
C-rod trav.mm : 14.20...14.30  
3rd speed 1/min : 900  
C-rod trav.mm : 13.80...14.10

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 360  
Contr.-rod trav.mm: 13.90...14.00

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 13.2...13.30  
2nd pressure hPa : 260  
C-rod trav.mm : 13.40...13.70  
3rd pressure hPa : 800  
C-rod trav.mm : 14.20...14.30

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 800  
Speed 1/min : 700  
Del.quantity cm3/ : 133.0...135.0  
1000H.: (131.0...137.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 450  
Del.quantity cm3/ : 104.0...106.0  
1000H.: (101.5...108.5)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...150.0  
1000H.: (137.0...153.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.90...7.00  
Del.quantity cm3/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13,4 D4  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 548 014  
  
Injection pump  
Pump designation : PE8MW100/720LS1128  
EP type number : 0 413 508 103  
Governor  
Governor design. : RQ300...1150MW63-2  
Governor no. : 0 420 082 019

Customer-spec. information  
Customer : KHD

Engine : BF 8L 513

1st version kW : 235.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
: (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 8- 7- 2- 6- 5-  
4- 3

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1150  
-----  
Contr.-rod trav.mm: 13.90...14.00  
-----  
Del.quantity cm3/ : 14.1...14.3  
100H.: (13.9...14.5)  
-----  
Dispersion cm3/ : 0.3  
100H.: (0.6)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 7.7...7.8  
Del.quantity cm3/ : 1.3...1.7  
100H.: (1.1...1.9)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1280  
Sleeve travel mm: 9.00...9.80  
2nd speed 1/min: 1150  
Sleeve travel mm: 6.60...6.80  
3rd speed 1/min: 650  
Sleeve travel mm: 5.80...6.20  
4th speed 1/min: 300  
Sleeve travel mm: 1.20...2.00

#### SLEEVE POSITION

Control-lever position  
Degree: -2  
Speed 1/min: 600  
Contr.-rod travelmm: 19.20...20.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1150  
Charge press. hPa : 900  
Del.quantity cm3/ : 141.0...143.0  
1000H.: (139.0...145.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

K06

1st version  
Control-lever  
position degrees: 34...42

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 13.00  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1285...1315  
4th speed 1/min : 1370  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 8...16  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 7.7

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 9.30  
Speed 1/min : 300  
C-rod trav.mm : 7.70...7.80

#### CONSTANT REGULATION

Speed 1/min : 330...400

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 13.90...14.00  
2nd speed 1/min : 700  
C-rod trav.mm : 14.90...15.00  
3rd speed 1/min : 950  
C-rod trav.mm : 14.20...14.50

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 480  
Contr.-rod trav.mm: 14.40...14.50

#### Measurement

Speed 1/min : 500  
1st pressure hPa : 900  
C-rod trav.mm : 14.90...15.00  
2nd pressure hPa : -  
C-rod trav.mm : 12.70...12.80  
3rd pressure hPa : 330  
C-rod trav.mm : 13.20...13.50

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 700

Del.quantity cm3/ : 153.0...155.0

1000H.: (151.0...157.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Charge press. hPa : -

Speed 1/min : 450

Del.quantity cm3/ : 107.0...109.0

1000H.: (105.0...111.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 135.0...155.0

1000H.: (132.0...158.0)

## LOW IDLE

Speed 1/min : 300

Contr.-rod trav.mm: 7.70...7.80

Del.quantity cm3/ : 13.0...17.0

1000H.: (11.0...19.0)

Dispersion cm3/ : 3.50

1000H.: (5.50)

## Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : KHD 12,7 T6  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 548 018  
  
Injection pump  
Pump designation : PE8MW100/720LS1117  
EP type number : 0 413 508 101  
Governor  
Governor design. : RQV300...1150MW75  
Governor no. : 0 420 083 113

Customer-spec. information  
Customer : KHD

Engine : F 8L 513

1st version kW : 188.0  
Speed 1/min: 2300

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
: (3.05...3.25)  
Contr.-rod trav.mm: 9.00...12.00

K08

Cam sequence : 1- 8- 7- 2- 6- 5-  
4- 3

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 1150  
-----  
Contr.-rod trav.mm: 11.50...11.60  
-----  
Del.quantity cm3/ : 10.5...10.7  
-----  
100H.: (10.3...10.9)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----

2nd speed 1/min: 300.0  
Contr.-rod trav. m: 8.0...8.1  
Del.quantity cm3/ : 1.1...1.5  
100H.: (0.9...1.7)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

**SLEEVE POSITION**

Control-lever position  
Degree: -1  
Speed 1/min: 1170  
Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
Speed 1/min: 1150  
Del.quantity cm3/ : 105.0...107.0  
1000H.: (103.0...109.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 51...59

Testing:  
1st c-rod trav.mm : 10.50  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.50  
Speed 1/min : 1260...1290  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever

position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 8.0

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.70  
Speed 1/min : 300  
C-rod trav.mm : 8.00...8.10

#### CONSTANT REGULATION

Speed 1/min : 320...420

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150  
C-rod trav.mm : 11.50...11.60  
2nd speed 1/min : 650  
C-rod trav.mm : 12.70...12.80  
3rd speed 1/min : 900  
C-rod trav.mm : 12.00...12.30

#### SWITCH-OVER POINT

Speed 1/min : 220 (250)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 650  
Del.quantity cm3/ : 113.0...115.0  
1000H.: (111.0...117.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 130.0...140.0  
1000H.: (127.0...143.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 8.00...8.10  
Del.quantity cm3/ : 11.0...15.0  
1000H.: (9.0...17.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13,4 DS  
 Edition : 09.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 548 019  
 Injection pump  
 Pump designation : PE8MW100/720LS1118  
 EP type number : 0 413 508 102  
 Governor  
 Governor design. : RQV425...900MW76  
 Governor no. : 0 420 083 114

Customer-spec. information  
 Customer : KHD

Engine : BF8LS13

1st version kW : 160.0  
 Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
 : (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 8- 7- 2- 6- 5-  
 4- 3

SD ang. spacing°CS: 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm3/ : 10.3...10.5

100H.: (10.1...10.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 6.0...6.1

Del.quantity cm3/ : 1.3...1.7

100H.: (1.1...1.9)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 950

Sleeve travel mm: 8.70...8.80

2nd speed 1/min: 1000

Sleeve travel mm: 9.70...10.10

3rd speed 1/min: 600

Sleeve travel mm: 3.90...4.50

4th speed 1/min: 425

Sleeve travel mm: 1.60...2.00

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 925

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del.quantity cm3/ : 103.0...105.0

1000H.: (101.0...107.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version



Control-lever  
position degrees: 51...59

Testing:  
1st c-rod trav.mm : 10.00  
Speed 1/min : 940...950  
2nd c-rod trav.mm : 4.50  
Speed 1/min : 985...1015

LOWEST RATED SPEED I  
Control-lever  
position degrees: 20...28  
Setting point w/out aux. spring  
Speed 1/min : 425  
Contr.-rod trav.mm: 6.0  
Speed 1/min : 425  
C-rod trav.mm : 6.00...6.10

CONSTANT REGULATION  
Speed 1/min : 435...520

TORQUE CONTROL  
Torque-control curve - 1st version  
1st speed 1/min : 900  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 600  
C-rod trav.mm : 11.60...11.70  
3rd speed 1/min : 750  
C-rod trav.mm : 11.20...11.50

SWITCH-OVER POINT  
Speed 1/min : 360 (400)

FUEL-DELIVERY CHARACTERISTICS  
Speed 1/min : 600  
Del.quantity cm3/ : 109.0...111.0  
1000H.: (107.5...113.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...150.0  
1000H.: (137.0...153.0)

#### LOW IDLE

Speed 1/min : 425  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 13.0...17.0  
1000H.: (11.0...19.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13.4 D7  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 548 020  
Injection pump  
Pump designation : PE8MW100/72OLS1128  
EP type number : 0 413 508 103  
Governor  
Governor design. : RQV300...1150MW56-1  
Governor no. : 0 420 083 125

Customer-spec. information  
Customer : KHD

Engine : BF 8L 513

1st version kW : 235.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
: (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 8- 7- 2- 6- 5-  
4- 3

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 12.80...12.90

Del.quantity cm3/ : 14.1...14.3

100H.: (13.9...14.5)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.5...6.6

Del.quantity cm3/ : 1.3...1.7

100H.: (1.1...1.9)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 1280

Sleeve travel mm: 9.00...9.80

2nd speed 1/min: 1150

Sleeve travel mm: 6.60...6.80

3rd speed 1/min: 650

Sleeve travel mm: 5.80...6.20

4th speed 1/min: 300

Sleeve travel mm: 1.20...2.00

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 900

Del.quantity cm3/ : 141.0...143.0

1000H.: (139.0...145.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...58

Testing:  
1st c-rod trav.mm : 11.80  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1300...1330  
4th speed 1/min : 1370  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I  
Control-lever  
position degrees: 14...22  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.5

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 8.10  
Speed 1/min : 300  
C-rod trav.mm : 6.50...6.60

CONSTANT REGULATION  
Speed 1/min : 320...400

TORQUE CONTROL  
Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 12.80...12.90  
2nd speed 1/min : 700  
C-rod trav.mm : 13.80...13.90  
3rd speed 1/min : 950  
C-rod trav.mm : 13.10...13.40

compensator (LDA,ADA,ALDA)

1st version  
Setting  
Speed 1/min : 500  
Pressure hPa : 480  
Contr.-rod trav.mm: 13.40...13.50

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11.70...11.80  
2nd pressure hPa : 330  
C-rod trav.mm : 12.50...12.80  
3rd pressure hPa : 900  
C-rod trav.mm : 13.80...13.90

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 900

K13

Speed 1/min : 700  
Del.quantity cm3/ : 153.0...155.0  
1000H.: (151.0...157.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 450  
Del.quantity cm3/ : 107.0...109.0  
1000H.: (105.0...111.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 135.0...155.0  
1000H.: (132.0...158.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.50...6.60  
Del.quantity cm3/ : 13.0...17.0  
1000H.: (11.0...19.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:  
Test electrically-released starting  
quantity (EES) with 12 volts

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13,4 D8  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 548 021  
Injection pump  
Pump designation : PE8MW100/72OLS1118  
EP type number : 0 413 508 102  
Governor  
Governor design. : RQV300...1150MW56-2  
Governor no. : 0 420 083 127

Customer-spec. information  
Customer : KHD

Engine : BF 8L 513

1st version kW : 235.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
: (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 8- 7- 2- 6- 5-  
4- 3

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1150  
Contr.-rod trav.mm: 13.20...13.30  
Del.quantity cm3/ : 13.9...14.1  
100H.: (13.7...14.3)  
Dispersion cm3/ : 0.3  
100H.: (0.6)

2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.9...7.0  
Del.quantity cm3/ : 1.3...1.7  
100H.: (1.1...1.9)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 1200  
Sleeve travel mm: 8.50...8.70  
2nd speed 1/min: 1300  
Sleeve travel mm: 9.80...10.20  
3rd speed 1/min: 600  
Sleeve travel mm: 3.90...4.50  
4th speed 1/min: 300  
Sleeve travel mm: 1.30...1.70

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1200  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1150  
Charge press. hPa : 900  
Del.quantity cm3/ : 139.0...141.0  
1000H.: (137.0...143.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...58

Testing:  
1st c-rod trav.mm : 12.20  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1305...1335  
4th speed 1/min : 1370  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I  
Control-lever  
position degrees: 14...22  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.9

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 8.50  
Speed 1/min : 300  
C-rod trav.mm : 6.90...7.00

CONSTANT REGULATION  
Speed 1/min : 320...500

TORQUE CONTROL  
Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 13.20...13.30  
2nd speed 1/min : 750  
C-rod trav.mm : 13.80...13.90  
3rd speed 1/min : 900  
C-rod trav.mm : 13.40...13.60

compensator (LDA,ADA,ALDA)

1st version  
Setting  
Speed 1/min : 500  
Pressure hPa : 450  
Contr.-rod trav.mm: 13.50...13.80

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 12.20...12.30  
2nd pressure hPa : 300  
C-rod trav.mm : 12.70...12.80  
3rd pressure hPa : 900  
C-rod trav.mm : 13.80...13.90

SWITCH-OVER POINT  
Speed 1/min : 220 (250)

FUEL-DELIVERY CHARACTERISTICS

K15

1st version  
Charge press. hPa : 900  
Speed 1/min : 750  
Del.quantity cm3/ : 146.0...148.0  
1000H.: (144.0...150.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 450  
Del.quantity cm3/ : 111.0...113.0  
1000H.: (109.0...115.0)

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...150.0  
1000H.: (137.0...153.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.90...7.00  
Del.quantity cm3/ : 13.0...17.0  
1000H.: (11.0...19.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MTU 47,5 H1  
 Edition : 9.3.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 406 030 002  
 Injection pump  
 Pump designation : PE12ZWM160/12ORS2012  
 EP type number : 0 416 060 003  
 Governor  
 Governor design. : RQUV300...1050ZWA65R  
 Governor no. : 0 422 409 036

Customer-spec. information  
 Customer : MTU

Engine : 12 V 396-03

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 026

Opening  
 pressure, bar : 220...223

Test inj. tubing : 1 680 750 016

Outside diameter  
 x Wall thickness : 8.00X2.00X1500  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Prestroke mm : 2.50...2.60  
 : (2.45...2.65)  
 Contr.-rod trav.mm: 12.0  
 Cam sequence : 12-9-4-5-8-11-2-3-10  
 -7-6-1

SD ang. spacing<sup>o</sup>CS: 0-15-60-75-120-135-  
180-195-240-255-300-  
315  
Tolerance + - <sup>o</sup> : 0.50(0.75)

SD mark cyl. no. : 12

#### BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 18.00

Del.quantity cm3/ : 63.0...64.4

100H.: 62.5...64.9

Dispersion cm3/ : 2.0

100H.: (3.0)

2nd speed 1/min: 1000

Contr.-rod trav. m: 9.00

Del.quantity cm3/ : 21.2...24.0

100H.: (20.7...24.5)

Dispersion cm3/ : 2.8

100H.: (4.2)

3rd speed 1/min: 350

Contr.-rod trav.mm: 9.00

Del.quantity cm3/ : 13.2...15.6

100H.: (12.7...16.1)

Dispersion cm3/ : 1.6

100H.: (2.4)

#### SLEEVE POSITION

Control-lever position

Degree: 79...85

Speed 1/min: 1050

Contr.-rod travelmm: 18.00

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 79...85

Testing:

1st c-rod trav.mm : 18.00

Speed 1/min : 1050

2nd c-rod trav.mm : 17.00

Speed 1/min : 1055...1075

3rd c-rod trav.mm : 4.00

Speed 1/min : 1150...1210

4th speed 1/min : 1250

C-rod trav.mm : 0.00...2.00

#### SET IDLE CONTROL-LEVER

POSITION

Speed 1/min : 300

Contr.-rod trav.mm: 8.00

Control-lever

position degrees: 19...24

#### LOWEST RATED SPEED I

Speed 1/min : 200

C-rod trav.mm : 10.80...14.20

C-rod trav.mm : 8.00

Speed 1/min : 300

C-rod trav.mm : 0.01

Speed 1/min : 485...590

Remarks:

Stamp prestroke dimension into pump housing

Stamp dimension "0". Control-rod travel "0" corresponds to 1.0 mm

clearance of the control-collar capsule from the end-face stop plate.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 B 1  
Edition : 21.05.87  
Superceeded : 10.86  
Calibrating oil : ISO-4113  
Combination no. : 9 400 083 451  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
-2  
EP type number : 9 410 230 028  
Governor  
Governor design. : RQV350...1100AB1218R  
Governor no. : 9 420 080 214

Customer-spec. information  
Customer : CUMMINS

Engine : 6 CT/8.3 1

1st version kW : 210.0  
Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-pil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00  
Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 12.80...12.90

Del.quantity cm3/ : 11.9...12.1

100H.: (11.7...12.3)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm3/ : 1.3...1.7

100H.: (1.0...1.9)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 1150

Sleeve travel mm: 8.50...8.60

2nd speed 1/min: 350

Sleeve travel mm: 2.20...2.60

3rd speed 1/min: 500

Sleeve travel mm: 3.60...3.90

4th speed 1/min: 800

Sleeve travel mm: 5.30...5.60

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1140

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 800



Del. quantity cm3/ : 119.0...121.0  
1000H.: (117.0...123.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

Testing:

1st c-rod trav.mm : 11.80  
Speed 1/min : 1140...1150  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1240...1270  
4th speed 1/min : 1370  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 11...19

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 5.90...6.10  
C-rod trav.mm : 2.00  
Speed 1/min : 630...690

#### CONSTANT REGULATION

Speed 1/min : 350...500

#### TORQUE CONTROL

Dimension a mm : 0.70  
Torque-control curve - 1st version  
1st speed 1/min : 1100  
C-rod trav.mm : 12.80...12.90  
2nd speed 1/min : 700  
C-rod trav.mm : 13.50...13.60  
3rd speed 1/min : 900  
C-rod trav.mm : 13.30...13.50  
4th speed 1/min : 950  
C-rod trav.mm : 13.10...13.30

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 800  
Contr.-rod trav.mm: 13.50...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav/mm : 11.40...11.50  
2nd pressure hPa : 575

C-rod trav.mm : 12.90...13.10  
3rd pressure hPa : 475  
C-rod trav.mm : 12.00...12.20

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 800  
Speed 1/min : 700  
Del. quantity cm3/ : 125.5...128.5  
1000H.: (123.0...131.0)  
Charge press. hPa : 800  
Speed 1/min : 900  
Del. quantity cm3/ : 128.5...131.5  
1000H.: (126.0...134.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 86.0...88.0  
1000H.: (84.0...90.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 168.0...182.0  
1000H.: (-)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5.90...6.10  
Del. quantity cm3/ : 13.0...17.0  
1000H.: (10.5...19.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

Start-of-delivery mark at 10° cam  
rotation angle after start of delivery,  
cylinder 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 A 5  
 Edition : 21.05.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 083 454  
 Injection pump  
 Pump designation : PES6A100D320/3RS2691  
 EP type number : 9 410 230 025  
 Governor  
 Governor design. : RSV400...900A7C2209-1R  
 Governor no. : 9 420 083 232  
 Customer-spec. information  
 Customer : CUMMINS  
 Engine : 6 CT

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 047  
 Inlet press., bar : 1.00  
 Calibrating nozzle-holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test inj. tubing : 1 680 750 014  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00  
 Difference ° CS : 3.00...4.00

## BASIC SETTING

1st speed 1/mi: 900  
 -----  
 Contr.-rod trav.mm: 12.70...12.80  
 -----  
 Del.quantity cm3/ : 12.9...13.0  
 -----  
 100H.: (12.7...13.2)  
 -----  
 Dispersion cm3/ : 0.3  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 400.0  
 Contr.-rod trav. m: 5.9...6.1  
 Del.quantity cm3/ : 1.6...2.0  
 100H.: (1.4...2.3)  
 Dispersion cm3/ : 0.3  
 100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed 1/min: 800  
 Cont.-rod travelmm: 0.30...0.70

Governor-spring reload  
 Notch setting x : 5.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 900  
 Del.quantity cm3/ : 129.0...130.0  
 1000H.: (127.0...132.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 53...61

Testing:  
 1st c-rod trav.mm : 11.70  
 Speed 1/min : 940...950  
 2nd c-rod trav.mm : 4.00

Speed 1/min : 970...1000  
4th speed 1/min : 1100  
C-rod trav.mm : 0.30...1.40

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 23...31  
Setting point w/out aux. spring  
Speed 1/min : 400  
Contr.-rod trav.mm: 5.5

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 400  
C-rod trav.mm : 5.90...6.10  
C-rod trav.mm : 2.00  
Speed 1/min : 420...480

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 900  
C-rod trav.mm : 12.70...12.80  
2nd speed 1/min : 500  
C-rod trav.mm : 12.70...12.90  
5th speed 1/min : 400  
C-rod trav.mm : 13.70...14.30

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500  
Del.quantity cm3/ : 115.0...118.0  
1000H.: (112.5...120.5)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 135.0...149.0  
1000H.: (132.0...152.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 400  
Contr.-rod trav.mm: 5.90...6.10  
Del.quantity cm3/ : 16.5...20.5  
1000H.: (14.0...23.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:  
APPLICATION  
Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 A 1  
Edition : 6.87  
Superceeded : 5.85  
Calibrating oil : ISO-4113  
  
Combination no. : 9 400 085 232  
  
Injection pump  
Pump designation : PES6A95D410RS2688  
EP type number : 9 400 083 090  
Governor  
Governor design. : RQV350...1300AB1208L  
Governor no. : 9 420 080 185

Customer-spec. information  
Customer : FORD

Engine : 6,6 L TC

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25  
                  : (3.10...3.30)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1-5--3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.5 (0.75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00  
& c-rod trav max. : 21.00  
Difference ° CS : 2.0...3.0

## BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 12.10...12.20  
-----  
Del.quantity cm3/ : 8.6...8.8  
-----  
100H.: (8.4...9.0)  
-----  
Dispersion cm3/ : 0.35  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350  
Contr.-rod trav. m: 6.90...7.10  
Del.quantity cm3/ : 0.95...1.35  
100H.: (0.7...1.6)  
Dispersion cm3/ : 0.35  
100H.: (0.55)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.30...1.50  
2nd speed 1/min: 500  
Sleeve travel mm: 3.50...3.70  
3rd speed 1/min: 1000  
Sleeve travel mm: 5.90...6.10  
4th speed 1/min: 1345  
Sleeve travel mm: 8.50...6.10

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1345  
Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Charge press. hPa : 500  
Del.quantity cm3/ : 86.0...90.0  
1000H.: (84.0...90.0)

Dispersion cm3/ : 3.5  
1000H.: (6.0)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 11.10

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1460...1490

4th speed 1/min : 1600

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 14...22

Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.00

Speed 1/min : 350

C-rod trav.mm : 6.90...7.10

C-rod trav.mm : 2.00

Speed 1/min : 670...730

#### TORQUE CONTROL

Dimension a mm : 0.70

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 12.10...12.20

2nd speed 1/min : 600

C-rod trav.mm : 12.80...12.90

3rd speed 1/min : 800

C-rod trav.mm : 12.60...12.80

4th speed 1/min : 900

C-rod trav.mm : 12.40...12.70

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 500

Contr.-rod trav.mm: 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.60...10.70

2nd pressure hPa : 400

C-rod trav.mm : 12.20....12.30

3rd pressure hPa : 250

C-rod trav.mm : 11.00...11.20

#### SWITCH-OVER POINT

K23

Speed 1/min : 290(310)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 500

Speed 1/min : 600

Del.quantity cm3/ : 83.0...86.0

1000H.: (80.5...88.5)

Charge press. hPa : 500

Speed 1/min : 800

Del.quantity cm3/ : 86.0...89.0

1000H.: (83.5...91.5)

Charge press. hPa : -

Speed 1/min : 600

Del.quantity cm3/ : 57.0...59.0

1000H.: (55.0...61.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 115.0...125.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 G  
Edition : 6.87  
Superceeded : 4.86  
Calibrating oil : ISO-4113

Combination no. : 9 400 085 248

Injection pump  
Pump designation : PES6A95D412RS2709  
EP type number : 9 400 083 009  
Governor  
Governor design. : RQV350...1400AB1202-1L  
Governor no. : 9 420 080 220

Customer-spec. information  
Customer : FORD (FTO)

Engine : 6,6 L NA

1st version kW : 106.7  
Speed 1/min: 2800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_\_\_\_\_

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25  
: (3.10...3.30)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - <sup>o</sup> : 0.5(0.75)

SD mark cyl. no. : 1

#### START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00  
& c-rod tray max. : 21.00  
Difference <sup>o</sup> CS : 2.0...3.0

#### BASIC SETTING

1st speed 1/mi: 1400

Contr.-rod trav.mm: 10.70...10.80

Del.quantity cm3/ : 7.9...8.0  
100H.: (7.7...8.2)

Dispersion cm3/ : 0.35  
100H.: (0.6)

2nd speed 1/min: 350  
Contr.-rod trav. m: 6.40...6.60  
Del.quantity cm3/ : 0.7...1.1  
100H.: (0.5...1.3)  
Dispersion cm3/ : 0.35  
100H.: (0.55)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 350  
Sleeve travel mm: 1.30...1.60  
2nd speed 1/min: 700  
Sleeve travel mm: 4.20...4.60  
3rd speed 1/min: 1100  
Sleeve travel mm: 6.10...6.40  
4th speed 1/min: 1420  
Sleeve travel mm: 8.50...8.60

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1420  
Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1400

Del.quantity cm3/ : 79.0...80.0  
1000H.: (77.0...82.0)  
Dispersion cm3/ : 3.5  
1000H.: (5.5)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 60...66

#### Testing:

1st c-rod trav.mm : 9.70  
Speed 1/min : 1450...1460  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1550...1580  
4th speed 1/min : 1720  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 10...18

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.40...6.60  
C-rod trav.mm : 2.00  
Speed 1/min : 560...620

#### SWITCH-OVER POINT

Speed 1/min : 290(310)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm3/ : 70.0...73.0  
1000H.: (67.5...75.5)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 112.0...122.0  
1000H.: (-)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.40...6.60  
Del.quantity cm3/ : 7.0...11.0  
1000H.: (5.0...13.0)  
Dispersion cm3/ : 3.5  
1000H.: (5.5)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 F  
Edition : 6.87  
Superceeded : 3.86  
Calibrating oil : ISO-4113  
Combination no. : 9 400 085 258  
Injection pump  
Pump designation : PES6A95D410RS2714  
EP type number : 9 400 084 001  
Governor  
Governor design. : RQV375...1300AB1208-  
1L  
Governor no. : 9 420 080 219

Customer-spec. information  
Customer : FORD (FTO)

Engine : 6,6 TC

1st version kW : 121.4  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6,00X2,00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25  
(3.10...3.30)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.5(0.75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00  
& c-rod tray max. : 21.00  
Difference ° CS : 2.0...3.0

## BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm3/ : 8.6...8.8

100H.: (8.4...9.0)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 375

Contr.-rod trav. m: 6.70...6.90

Del.quantity cm3/ : 0.9...1.3

100H.: (0.7...1.6)

Dispersion cm3/ : 0.35

100H.: (0.55)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.30...1.60

2nd speed 1/min: 700

Sleeve travel mm: 4.10...4.50

3rd speed 1/min: 1100

Sleeve travel mm: 6.30...6.60

4th speed 1/min: 1345

Sleeve travel mm: 8.50...8.60

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1345

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300



Charge press. hPa : 600  
Del.quantity cm3/ : 86.0...88.0  
1000H.: (84.0...90.0)  
Dispersion cm3/ : 3.5  
1000H.: (6.0)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 59...67

#### Testing:

1st c-rod trav.mm : 11.10  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1450...1480  
4th speed 1/min : 1600  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 12...20

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 10.00  
Speed 1/min : 375  
C-rod trav.mm : 6.70...6.90  
C-rod trav.mm : 2.00  
Speed 1/min : 650...710

#### TORQUE CONTROL

Dimension a mm : 0.70  
Torque-control curve - 1st version  
1st speed 1/min : 1300  
C-rod trav.mm : 12.10...12.20  
2nd speed 1/min : 600  
C-rod trav.mm : 12.80...12.90  
3rd speed 1/min : 800  
C-rod trav.mm : 12.60...12.80  
4th speed 1/min : 900  
C-rod trav.mm : 12.40...12.70

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 600  
Contr.-rod trav.mm: 12.80...12.90

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 10.60...10.70  
2nd pressure hPa : 400  
C-rod trav.mm : 12.20...12.30  
3rd pressure hPa : 250

C-rod trav.mm : 11.00...11.20

#### SWITCH-OVER POINT

Speed 1/min : 290(310)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 600  
Speed 1/min : 600  
Del.quantity cm3/ : 83.0...86.0  
1000H.: (80.5...88.5)  
Charge press. hPa : 600  
Speed 1/min : 800  
Del.quantity cm3/ : 86.0...89.0  
1000H.: (83.5...91.5)  
Charge press. hPa : -  
Speed 1/min : 600  
Del.quantity cm3/ : 57.0...59.0  
1000H.: (55.0...61.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 115.0...125.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 A 2  
 Edition : 7.87  
 Superceeded : 2.86  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 085 262  
 Injection pump  
 Pump designation : PES6A95D41ORS2688  
 EP type number : 9 400 083 090  
 Governor  
 Governor design. : RQV375...1300AB1208-1L  
 Governor no. : 9 420 080 219  
 Customer-spec. information  
 Customer : FORD (FT0)

Engine : 6,6 L TC

1st version kW : 121.4  
 Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25  
 : (3.10...3.30)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - <sup>o</sup> : 0.5 (0.75)

SD mark cyl. no. : 1

#### START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00  
& c-rod trav max. : 21.00  
Difference <sup>o</sup> CS : 2.0...3.0

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 12.10...12.20

Del.quantity cm3/ : 8.6...8.8

100H.: (8.4...9.0)

Dispersion cm3/ : 0.35

100H.: (0.60)

2nd speed 1/min: 375

Contr.-rod trav. m: 6.70...6.90

Del.quantity cm3/ : 0.9...1.3

100H.: (0.7...1.6)

Dispersion cm3/ : 0.35

100H.: (0.55)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.30...1.60

2nd speed 1/min: 700

Sleeve travel mm: 4.10...4.50

3rd speed 1/min: 1100

Sleeve travel mm: 6.30...6.60

4th speed 1/min: 1345

Sleeve travel mm: 8.50...8.60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1345

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

L02

Charge press. hPa : 600  
Del.quantity cm3/ : 86.0...88.0  
1000H.: (84.0...90.0)  
Dispersion cm3/ : 3.5  
1000H.: (6.0)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

Testing:

1st c-rod trav.mm : 11.10

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1450...1480

4th speed 1/min : 1600

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.00

Speed 1/min : 375

C-rod trav.mm : 6.70...6.90

C-rod trav.mm : 2.00

Speed 1/min : 650...710

#### TORQUE CONTROL

Dimension a mm : 0.70

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 12.10...12.20

2nd speed 1/min : 600

C-rod trav.mm : 12.80...12.90

3rd speed 1/min : 800

C-rod trav.mm : 12.60...12.80

4th speed 1/min : 900

C-rod trav.mm : 12.40...12.70

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 600

Contr.-rod trav.mm: 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.60...10.70

2nd pressure hPa : 400

C-rod trav.mm : 12.20...12.30

3rd pressure hPa : 250

C-rod trav.mm : 11.00...11.20

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 600  
Speed 1/min : 600  
Del.quantity cm3/ : 83.0...86.0  
1000H.: (80.5...88.5)  
Charge press. hPa : 600  
Speed 1/min : 800  
Del.quantity cm3/ : 86.0...89.0  
1000H.: (83.5...91.5)  
Charge press. hPa : -  
Speed 1/min : 600  
Del.quantity cm3/ : 57.0...59.0  
1000H.: (55.0...61.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 115.0...125.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.0...21.0

## LOW IDLE

Speed 1/min : 375  
Contr.-rod trav.mm: 6.70...6.90  
Del.quantity cm3/ : 9.5...13.5  
1000H.: (7.0...16.0)  
Dispersion cm3/ : 3.5  
1000H.: (5.5)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 Q9  
Edition : 21.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 368  
Injection pump  
Pump designation : PE6P110A32ORS3108V  
EP type number : 0 411 816 737  
Governor  
Governor design. : RQV250...1100PA589-1  
Governor no. : 9 420 080 166

Customer-spec. information  
Customer : VOLVO

Engine : THD 101 FD

1st version kW : 210.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 681 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
: (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.70...13.80

Del.quantity cm3/ : 18.0...18.2

100H.: (17.7...18.5)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 3.2...3.6

100H.: (2.9...3.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 370

Sleeve travel mm: 2.60...3.00

3rd speed 1/min: 430

Sleeve travel mm: 3.50...3.90

4th speed 1/min: 1160

Sleeve travel mm: 8.10...8.30

5th speed 1/min: 1210

Sleeve travel mm: 9.40...9.60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 1200

Del.quantity cm3/ : 180.0...182.0

1000H.: (177.0...185.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

Testing:

1st c-rod trav.mm : 12.70

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1220...1250

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 7...15

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.70

Speed 1/min : 250

C-rod trav.mm : 5.40...5.60

C-rod trav.mm : 2.00

Speed 1/min : 345...405

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 1200

Contr.-rod trav.mm: 13.70...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.80...9.90

2nd pressure hPa : 720

C-rod trav.mm : 12.80...12.90

3rd pressure hPa : 360

C-rod trav.mm : 10.90...11.00

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 108.0...110.0

1000H.: (105.0...113.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 160.0...190.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 5.40...5.60  
Del.quantity cm3/ : 32.0...36.0  
1000H.: (29.5...38.5)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0010  
 Edition : 21.05.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 087 369  
 Injection pump  
 Pump designation : PE6P110A32ORS3108Z  
 EP type number : 0 411 816 728  
 Governor  
 Governor design. : RQV250...1100PAS89-1  
 Governor no. : 9 420 080 166

Customer-spec. information  
 Customer : VOLVO

Engine : THD 101 GB

1st version kW : 161.0  
 Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Contr.-rod trav.mm: 9.00...12.00

L07

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 10.50...10.60

Del.quantity cm3/ : 12.0...12.3

100H.: (11.8...12.6)

Dispersion cm3/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 3.2...3.6

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.20...1.30

2nd speed 1/min: 370

Sleeve travel mm: 2.60...3.00

3rd speed 1/min: 430

Sleeve travel mm: 3.50...3.90

4th speed 1/min: 1160

Sleeve travel mm: 8.10...8.30

5th speed 1/min: 1210

Sleeve travel mm: 9.40...9.60

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1175

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 750

Del.quantity cm3/ : 120.0...123.0

1000H.: (118.0...126.0)

Dispersion cm3/ : 4.00

1000H.: (7.50)



## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 52...60

### Testing:

1st c-rod trav.mm : 9.50

Speed 1/min : 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min : 1205...1235

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Control-lever

position degrees: 8...12

### Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.90

Speed 1/min : 250

C-rod trav.mm : 5.40...5.60

C-rod trav.mm : 2.00

Speed 1/min : 350...410

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 750

Contr.-rod trav.mm: 10.50...10.60

### Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.60...9.80

2nd pressure hPa : 250

C-rod trav.mm : 10.30...10.40

3rd pressure hPa : 220

C-rod trav.mm : 10.00...10.20

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : -

Speed 1/min : 700

Del.quantity cm3/ : 104.5...107.5

1000H.: (102.0...110.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100

L08

Del.quantity cm3/ : 160.0...190.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 5.40...5.60

Del.quantity cm3/ : 32.0...36.0

1000H.: (-)

Dispersion cm3/ : 3.00

1000H.: (6.00)

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 V7  
Edition : 6.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 370  
Injection pump  
Pump designation : PE6P120A72ORS7004  
EP type number : 0 412 626 801  
Governor  
Governor design. : RSV350...900P7/481  
Governor no. : 9 420 082 320

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DS 11

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

L09

Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.5 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 900  
Contr.-rod trav.mm: 12.80...12.90  
Del.quantity cm3/ : 20.8...21.0  
100H.: (20.5...21.3)  
Dispersion cm3/ : 0.6  
100H.: (0.9)

2nd speed 1/min: 350  
Contr.-rod trav. m: 5.40...5.60  
Del.quantity cm3/ : 1.2...1.8  
100H.: (0.9...2.1)  
Dispersion cm3/ : 0.8  
100H.: (1.2)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.40

Governor-spring reload  
Notch setting x : 6.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 900  
Del.quantity cm3/ : 208.0...210.0  
1000H.: (205.0...213.0)  
Dispersion cm3/ : 6.0  
1000H.: (9.0)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 46...54

Testing:  
1st c-rod trav.mm : 11.80  
Speed 1/min : 920...925  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 960...970  
4th speed 1/min : 1050  
C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever

position degrees: 16...24

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 4.00

Speed 1/min : 350

C-rod trav.mm : 4.40...4.60

C-rod trav.mm : 2.00

Speed 1/min : 400...460

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity 1/h3/ : 240.0...290.0

1000H.: (-)

Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 4.40...4.60

#### Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring

preload on new delivery-valve holders

to 3.0...3.1 mm.

Screw in torque-control-spring  
retainer to make contact at 500 l/min.

#### APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 10.1 A7  
 Edition : 4.3.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 231 008  
 Injection pump  
 Pump designation : PES6P110A72ORS370  
 Governor  
 Governor design. : RSV500...900P0/452DR

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6619 T

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Prestroke mm : 2.75...2.85  
 : (2.70...2.90)  
 Contr.-rod trav.mm : 11.60  
 Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 900  
 -----  
 Contr.-rod trav.mm: 11.60  
 -----  
 Del.quantity cm3/ : 16.0...16.2  
 -----  
 100H.: (-)  
 -----  
 Dispersion cm3/ : 0.4  
 -----  
 100H.: (-)  
 -----  
 2nd speed 1/min: 500  
 Contr.-rod trav. m: 6.00  
 Del.quantity cm3/ : 19.0...25.0  
 100H.: (-)

## SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed 1/min: 800  
 Cont.-rod travelmm: 0.30...0.70

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 900  
 Del.quantity cm3/ : 160.0...1141.0  
 1000H.: (157.0...165.0)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 38...46

Testing:  
 1st c-rod trav.mm : 10.60  
 Speed 1/min : 945...955  
 2nd c-rod trav.mm : 6.20  
 Speed 1/min : 985...1015  
 3rd c-rod trav.mm : 0.30...1.70  
 Speed 1/min : 1100

## LOWEST RATED SPEED I

Control-lever  
 position degrees: 21...29

Testing:  
 Speed 1/min : 500  
 C-rod trav.mm min : 5.50  
 C-rod trav.mm : 2.00  
 Speed 1/min : 610...670

## TORQUE CONTROL

Torque-control curve - 1st version  
 1st speed 1/min : 900  
 C-rod trav.mm : 11.60

2nd speed 1/min : 700  
C-rod trav.mm : 12.10...12.30  
3rd speed 1/min : 650  
C-rod trav.mm : 12.45...12.55  
4th speed 1/min : 500  
C-rod trav.mm : 12.80

SWITCH-OVER POINT

Speed 1/min : 400...750

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 650  
Del.quantity cm3/ : 176.5...179.5  
1000H.: (173.5...182.5)  
Speed 1/min : 550  
Del.quantity cm3/ : 135.0...141.0  
1000H.: (132.0...144.0)

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 190.0...210.0  
1000H.: (-)

HIGH IDLE

Speed 1/min : 1000  
Del.quantity cm3/ : 47.0...57.0  
1000H.: (-)

LOW IDLE

Speed 1/min : 500  
Del.quantity cm3/ : 190.0...250.0  
1000H.: (-)

Remarks:

: JOHN DEERE NO. AR  
: 88764

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 9.4 A 6  
Edition : 11.3.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 9 400 231 103  
  
Injection pump  
Pump designation : PES8P100A921/SRS286  
Governor  
Governor design. : RQV350...1300PA624K

Customer-spec. information  
Customer : IHC

Engine : DVT 800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 040

Inlet press., bar : 2.8

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207

Test inj. tubing : 9 681 230 713

Outside diameter  
x Wall thickness  
x Length mm : 6.35x1.70x1001

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Prestroke mm : 2.75...2.95  
: (2.70...3.00)  
Contr.-rod trav.mm: 10.50  
Cam sequence : 1-8-4-2-7-3-6-5

SD ang. spacing°CS: 0-45-90-135-180-225-

Tolerance + - ° : 270-315-  
: 0.50(0.75)

## BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.20

Del.quantity cm3/ : 12.7...12.9

100H.: (-)

Dispersion cm3/ : 0.4

100H.: (-)

2nd speed 1/min: 350

Contr.-rod trav. m: 5.00

Del.quantity cm3/ : 1.9...2.3

100H.: (-)

Dispersion cm3/ : 0.5

100H.: (-)

## SLEEVE POSITION

Control-lever position

Degree: 63...67

Speed 1/min: 1320

Cont.-rod travelmm: 15.00...17.50

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 1200

Del.quantity cm3/ : 127.0...129.0

1000H.: (-)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...65

Testing:

1st c-rod trav.mm : 10.20

Speed 1/min : 1350...1360

2nd c-rod trav.mm : 4.00

Speed 1/min : 1450...1480

3rd c-rod trav.mm : 0...1.00

Speed 1/min : 1650

## LOWEST RATED SPEED I

Control-lever

position degrees: 10...15

Testing:

Speed 1/min : 350

C-rod trav.mm min : 5.10

Speed 1/min : 100

C-rod trav.mm : 7.40...8.70

C-rod trav.mm : 2.00  
Speed 1/min : 540...600  
C-rod trav.mm : -  
Speed 1/min : 400...470

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300  
C-rod trav.mm : 11.20  
2nd speed 1/min : 900  
C-rod trav.mm : 10.80...10.90  
3rd speed 1/min : 700  
C-rod trav.mm : 10.20...10.30

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1200  
Speed 1/min : 900  
Del.quantity cm3/ : 119.0...125.0  
1000H.: (-)  
Charge press. hPa : -  
Speed 1/min : 800  
Del.quantity cm3/ : 83.0...91.0  
1000H.: (-)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 200.0...240.0  
1000H.: (-)

#### HIGH IDLE

1st version

Charge press. hPa : 1200  
Speed 1/min : 1505  
Contr.-rod trav.mm: 4.00

#### LOW IDLE

Speed 1/min : 350  
Del.quantity cm3/ : 190.0...230.0  
1000H.: (-)

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F 2,5 G1  
Edition : 06.07.87  
replaces : -  
Calibrating oil : ISO 4113  
Injection pump : VE 3/10F1250 R129  
Type number : 0 460 403 007

Customer-specific information  
Customer : S0FIM - IVECO

Engine : 8135.61.200

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC): +-0,02 (0,04)

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel:

Speed 1/min: 1250  
Setting value mm: 3,1...3,5

### Supply-pump pressure:

Speed 1/min: 1250  
Setting value bar: 4,5...5,1

Full-load del. w/out charge press.:

Speed 1/min : 1250

Del.quantity cm3/  
1000H.: 42,5...43,5  
Dispersion cm3/: 3,0  
1000H.: (3,5)

### Low-idle speed regulation:

Speed 1/min: 400  
Del.quantity cm3/  
1000H.: 11,0...15,0  
Dispersion cm3/: 2,5  
1000H.: (3,0)

### Full-load speed regulation:

Speed 1/min: 1450  
Del.quantity cm3/  
1000H.: 9,5...15,5

### Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 42,0

### Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications  
Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 0,7...1,5  
mm: (0,4...1,8)  
2nd speed 1/min: 1000  
TD travel mm: 1,7...2,3  
mm: (1,3...2,7)  
3rd speed 1/min: 1250  
TD travel mm: -  
mm: (2,6...4,0)

### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure bar: 2,3...2,9  
2nd speed 1/min: 1000  
Supply-pump  
pressure bar: 3,7...4,3

### Overflow quantity at overflow valve:

1st speed 1/min: 600  
Overflow : 55...138  
quantity cm3/10s: (40...153)  
2nd speed 1/min: 1250



Overflow : 55...138  
quantity cm3/10s: (40...153)

Remarks:

Delivery-quant. and breakaway char.:

1st speed 1/min: 1500  
Del.quantity cm3/: 0,0...2,5  
1000H.: -  
2nd speed 1/min: 1450  
Del.quantity cm3/: -  
1000H.: (8,5...16,5)  
3rd speed 1/min: 1400  
Del.quantity cm3/: 24,0...30,0  
1000H.: (23,0...31,0)  
4th speed 1/min: 1250  
Del.quantity cm3/: -  
1000H.: (40,8...45,2)  
5th speed 1/min: 1000  
Del.quantity cm3/: 39,0...41,0  
1000H.: (37,8...42,2)  
6th speed 1/min: 600  
Del.quantity cm3/: 31,0...34,0  
1000H.: (29,5...35,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250  
Del.quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 400  
Del.quantity cm3/: -  
1000H.: (9,0...17,0)  
2nd speed 1/min: 450  
Del.quantity cm3/: 3,0...9,0  
1000H.: (2,0...10,0)  
3rd speed 1/min: 500  
Del.quantity cm3/: 0,0...2,5  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del.quantity cm3/: -  
ind. 1000H: 42,0

2nd speed 1/min: 450  
Del.quantity cm3/: -  
ax. 1000H: 40,0

Mounting and assembly dimensions:

Designation

K mm : -  
KF mm : 5,9...6,2  
MS mm : 1,4...1,65  
SVS max. mm : 2,6

L16

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 2,5 A  
Edition : 16.07.87  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 3/10F1025 R276  
Type number : 0 460 403 010

Customer-specific information  
Customer : CASE

Engine : D 155/433

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 2,2...2,6

Supply-pump pressure:

Speed 1/min: 800  
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 800

Del. quantity cm3/  
1000H.: 60,0...61,0  
Dispersion cm3/: 2,5  
1000H.: (3,5)

#### Low-idle speed regulation:

Speed 1/min: 350  
Del. quantity cm3/  
1000H.: 13,0...17,0  
Dispersion cm3/: 2,5  
1000H.: (3,5)

#### Full-load speed regulation:

Speed 1/min: 1090  
Del. quantity cm3/  
1000H.: 37,0...43,0

#### Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 75,0

Inspection-pump test specifications  
Test specifications in parentheses

#### Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 0,7...1,5  
mm: (0,4...1,8)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (1,7...3,1)  
3rd speed 1/min: 1000  
TD travel mm: 3,5...4,3  
mm: (3,2...4,6)

#### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 3,0...3,6  
2nd speed 1/min: 1000  
Supply-pump pressure bar: 5,0...5,6

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1000  
Overflow : 55...138  
quantity cm3/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 1200

Del. quantity cm3/: 0,0...3,0  
1000H.: -

2nd speed 1/min: 1170

Del. quantity cm3/: 0,0...10,0  
1000H.: -

3rd speed 1/min: 1120

Del. quantity cm3/: 10,0...40,0  
1000H.: -

4th speed 1/min: 1090

Del. quantity cm3/: -  
1000H.: (35,5...44,5)

5th speed 1/min: 1000

Del. quantity cm3/: 60,5...63,5  
1000H.: (59,5...64,5)

6th speed 1/min: 800

Del. quantity cm3/: -  
1000H.: (58,2...62,8)

7th speed 1/min: 500

Del. quantity cm3/: 56,0...60,0  
1000H.: (55,0...61,0)

#### Zero delivery (stop):

#### Mech. shutoff:

Speed 1/min: 1000  
Del. quantity cm3/: 0..3  
1000H.: -

#### Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del. quantity cm3/: -  
1000H.: (11,0...15,0)  
2nd speed 1/min: 450  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 350  
Del. quantity cm3/: -  
ind. 1000H: 70,0

2nd speed 1/min: 450  
Del. quantity cm3/: -  
ax. 1000H: 70,0

#### Shutoff electromagnet:

#### Cut-in

min. voltage : -  
Rated voltage : -

#### Mounting and assembly dimensions:

#### Designation

K mm : 3,2...3,4  
KF mm : 5,2...5,5  
MS mm : 1,2...1,45

SVS max.	mm	: 4,6
XK	mm	: 20,2...22,2
XL	mm	: 8.6...12,0

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 2,5 B  
Edition : 16.07.87  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 3/10F1100 R276-1  
Type number : 0 460 403 011

Customer-specific information  
Customer : CASE

Engine : D 155/533/385

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 2,2...2,6

Supply-pump pressure:

Speed 1/min: 800  
Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Speed 1/min : 800

Del. quantity cm3/  
1000H.: 66,0...67,0  
Dispersion cm3/: 2,5  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del. quantity cm3/  
1000H.: 13,0...17,0  
Dispersion cm3/: 2,5  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1150  
Del. quantity cm3/  
1000H.: 67,2...70,2

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 75,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (1,7...3,1)  
3rd speed 1/min: 1050  
TD travel mm: 3,6...4,4  
mm: (3,3...4,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 2,8...3,4  
2nd speed 1/min: 1050  
Supply-pump pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1050  
Overfl : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:  
1st speed 1/min: 1250

Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1230  
Del. quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1180  
Del. quantity cm3/: 10,0...40,0  
1000H.: -  
4th speed 1/min: 1150  
Del. quantity cm3/: -  
1000H.: (45,5...54,5)  
5th speed 1/min: 1050  
Del. quantity cm3/: 67,2...71,2  
1000H.: (66,2...71,2)  
6th speed 1/min: 800  
Del. quantity cm3/: -  
1000H.: (64,2...68,8)  
7th speed 1/min: 500  
Del. quantity cm3/: 59,0...63,0  
1000H.: (58,0...64,0)

Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1100  
Del. quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del. quantity cm3/: -  
1000H.: (11,0...15,0)  
2nd speed 1/min: 450  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del. quantity cm3/: -  
ind. 1000H.: 80,0  
2nd speed 1/min: 450  
Del. quantity cm3/: -  
ax. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

Mounting and assembly dimensions:

Designation  
K mm : 3,2...3,4  
KF mm : 5,3...5,5  
MS mm : 1,2...1,45

SVS max.	mm	:	4,3
XK	mm	:	20,2...22,2
XL	mm	:	10,0...13,4

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 2,5 C  
Edition : 16.07.87  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 3/10F1090 R276-2  
Type number : 0 460 403 012

Customer-specific information  
Customer : CASE

Engine : D 179/633

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 200  
Setting value mm: 4,8...5,2

Supply-pump pressure:

Speed 1/min: 800  
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 800



Del. quantity cm3/  
1000H.: 73,3...74,3  
Dispersion cm3/: 2,5  
1000H.: (3,5)

#### Low-idle speed regulation:

Speed 1/min: 400  
Del. quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 2,5  
1000H.: (3,5)

#### Full-load speed regulation:

Speed 1/min: 1145  
Del. quantity cm3/  
1000H.: 45,0...51,0

#### Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 60,0

#### Inspection-pump test specifications Test specifications in parentheses

#### Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 2,4...3,2  
mm: (2,1...3,5)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (4,3...5,7)  
3rd speed 1/min: 1050  
TD travel mm: 6,1...6,9  
mm: (5,8...7,2)

#### Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 3,1...3,7  
2nd speed 1/min: 1050  
Supply-pump pressure bar: 5,1...5,7

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1050  
Overflow : 55...138  
quantity cm3/10s: (40...153)

#### Delivery-quant. and breakaway char.: 1st speed 1/min: 1300

Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1225  
Del. quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1175  
Del. quantity cm3/: 10,0...40,0  
1000H.: -  
4th speed 1/min: 1145  
Del. quantity cm3/: -  
1000H.: (43,5...52,5)  
5th speed 1/min: 1050  
Del. quantity cm3/: 76,5...79,5  
1000H.: (75,5...80,5)  
6th speed 1/min: 800  
Del. quantity cm3/: -  
1000H.: (71,5...76,1)  
7th speed 1/min: 500  
Del. quantity cm3/: 70,5...74,5  
1000H.: (69,5...75,5)

#### Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1050  
Del. quantity cm3/: -  
1000H.: -

#### Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 400  
Del. quantity cm3/: -  
1000H.: (16,0...24,0)  
2nd speed 1/min: 550  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 350  
Del. quantity cm3/: -  
ind. 1000H.: 80,0  
2nd speed 1/min: 450  
Del. quantity cm3/: -  
ax. 1000H.: 80,0

#### Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

#### Mounting and assembly dimensions:

Designation  
K mm : 3,2...3,4  
KF mm : 5,2...5,5  
MS mm : 1,7...1,95

SVS max. mm : 2,1

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,7 H1  
Edition : 14.07.87  
replaces : 18.12.86  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F2050 R192  
Type number : 0 460 404 040  
  
Customer-specific information  
Customer : IVECO-SOFIM  
  
Engine : 8144.91.200

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000  
  
Opening  
pressure bar : 147...150  
  
Test inj. tubing : 1 680 750 017  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840  
  
Start of delivery  
Prestroke mm : 0,3  
(from BDC): +-0,02 (0,04)  
  
Injection-pump setting values  
Test specifications in parentheses  
  
Timing-device travel:  
  
Speed 1/min: 1500  
Charge press. hPa: 800  
Setting value mm: 6,6...7,0  
  
Supply-pump pressure:  
  
Speed 1/min: 1500  
Charge press. hPa: 800  
Setting value bar: 6,6...7,2  
  
Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 800  
Del. quantity cm3/  
1000H.: 56,0...57,0  
Dispersion cm3/ : 3,0  
1000H.: (3,5)

Full-load del. w/out charge press.:

Speed 1/min : 600  
Del. quantity cm3/  
1000H.: 43,5...44,5

Low-idle speed regulation:

Speed 1/min: 400  
Charge press. hPa: -  
Del. quantity cm3/  
1000H.: 9,0...13,0  
Dispersion cm3/ : 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 2250  
Charge press. hPa: 800  
Del. quantity cm3/  
1000H.: 34,5...40,5

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 44,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press. hPa: 800  
TD travel mm: 2,1...2,9  
mm: (1,8...3,2)  
2nd speed 1/min: 1500  
Charge press. hPa: 800  
TD travel mm: -  
mm: (6,3...7,3)  
3rd speed 1/min: 2050  
Charge press. hPa: 800  
TD travel mm: 7,8...8,6  
mm: (7,5...8,9)

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 800  
Supply-pump  
pressure bar: 4,1...4,7  
2nd speed 1/min: 2050  
Charge press. hPa: 800  
Supply-pump  
pressure bar: 8,2...8,8

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: 800  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 2050  
Charge press. hPa: 800  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800  
Charge-air pressure-setting  
point hPa: 250  
LDA stroke mm: 4,5  
Del. quantity cm3/ : -  
1000H.: (49,5...54,5)  
2nd speed 1/min: 2400  
Charge press. hPa: 800  
Del. quantity cm3/ : 0,0...3,0  
1000H.: -  
3rd speed 1/min: 2350  
Charge press. hPa: 800  
Del. quantity cm3/ : 1,5...8,5  
1000H.: (1,0...9,0)  
4th speed 1/min: 2250  
Charge press. hPa: 800  
Del. quantity cm3/ : -  
1000H.: (33,5...41,5)  
5th speed 1/min: 2050  
Charge press. hPa: 800  
Del. quantity cm3/ : 48,5...51,5  
1000H.: (47,8...52,2)  
6th speed 1/min: 1500  
Charge press. hPa: 800  
Del. quantity cm3/ : -  
1000H.: (54,5...58,5)  
7th speed 1/min: 600  
Charge press. hPa: -  
Del. quantity cm3/ : -  
1000H.: (41,5...46,5)

Zero delivery (stop):

Electr. shutoff:  
Speed 1/min: 400  
ELAB volt: -  
Del. quantity cm3/ : 0,0...3,0  
max. 1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 400  
Del. quantity cm3/: -  
1000H.: (7,0...15,0)  
2nd speed 1/min: 450  
Del. quantity cm3/: 1,5...6,5  
1000H.: (0,0...8,0)

Automatic starting fuel delivery:

1st speed 1/min: 450  
Del. quantity cm3/: -  
ind. 1000H: 47,0  
2nd speed 1/min: 500  
Del. quantity cm3/: -  
ax. 1000H: 42,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,7...6,0
MS	mm	: 1,2...1,4
SVS max.	mm	: 2,2
XK	mm	: 17,0...19,0
XL	mm	: 11,4...14,8

Remarks:

Correction at adjusting nut (46)

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 2,2 F  
Edition : 20.07.87  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F2100 L269  
Type number : 0 460 404 050  
  
Customer-specific information  
Customer : MOTORI VM  
  
Engine : HR 492.4HJ

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000  
  
Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 4,3...4,7

Supply-pump pressure:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value bar: 5,9...6,5

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 1000

Del. quantity cm<sup>3</sup>/  
1000H.: 66,0...67,0  
Dispersion cm<sup>3</sup>/  
1000H : (3,5)

Full-load del. w/out charge press.:

Speed 1/min : 700  
Del. quantity cm<sup>3</sup>/  
1000H.: 53,0...54,0

Low-idle speed regulation:

Speed 1/min: 425  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/  
1000H.: 13,0...17,0  
Dispersion cm<sup>3</sup>/  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 2100  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
1000H: 57,7...60,7

Start:

Speed 1/min: 100  
Charge press. hPa: -  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 1500  
Charge press. hPa: -

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000  
Charge press. hPa: 1000  
TD travel mm: 1,3...2,1  
mm: (1,0...2,4)  
2nd speed 1/min: 1500  
Charge press. hPa: 1000  
TD travel mm: -  
mm: (3,8...5,2)  
3rd speed 1/min: 2100  
Charge press. hPa: 1000  
TD travel mm: 7,1...7,9  
mm: (6,8...8,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Charge press. hPa: 1000  
Supply-pump  
pressure bar: 3,1...3,7  
2nd speed 1/min: 2100  
Charge press. hPa: 1000  
Supply-pump  
pressure bar: 7,5...8,1

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 2100  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700  
Charge-air pressure-setting  
point hPa: 450  
Del.quantity cm3/: 62,0...63,0  
1000H.: (59,9...65,1)  
2nd speed 1/min: 2450  
Charge press. hPa: 1000  
Del.quantity cm3/: 0,5...7,5  
1000H.: (0,0...8,5)  
3rd speed 1/min: 2300  
Charge press. hPa: 1000  
Del.quantity cm3/: 27,0...33,0  
1000H.: (25,5...34,5)  
4th speed 1/min: 2100  
Charge press. hPa: 1000  
Del.quantity cm3/: -  
1000H.: (56,6...61,8)  
5th speed 1/min: 1500  
Charge press. hPa: 1000  
Del.quantity cm3/: -  
1000H.: (63,9...69,1)  
6th speed 1/min: 700  
Charge press. hPa: 1000  
Del.quantity cm3/: 67,5...70,5  
1000H.: (65,6...72,4)  
7th speed 1/min: 700  
Charge press. hPa: -  
Del.quantity cm3/: -  
1000H.: (50,9...56,1)  
8th speed 1/min: 600  
Charge press. hPa: -  
Del.quantity cm3/: 52,5...54,5  
1000H.: (50,1...56,9)

Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 2100  
Del.quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 425  
Del.quantity cm3/: -  
1000H.: (10,5...19,5)  
2nd speed 1/min: 450  
Del.quantity cm3/: 7,5...12,5  
1000H.: (5,5...14,5)  
3rd speed 1/min: 500  
Del.quantity cm3/: 0,5...5,5  
1000H.: (0,0...7,5)

Automatic starting fuel delivery:

1st speed 1/min: 400  
Del.quantity cm3/: -  
ind. 1000H: 55,0  
2nd speed 1/min: 550  
Del.quantity cm3/: -  
ax. 1000H: 57,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : 3,2...3,4  
KF mm : 5,7...6,0  
MS mm : 0,9...0,95  
SVS max. mm : 4,6

Remarks:

Correction at adjusting nut (46)

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 A  
Edition : 17.07.87  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F1150 R283  
Type number : 0 460 404 052  
  
Customer-specific information  
Customer : CASE  
  
Engine : D 239/745

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC):  $\pm 0,02$  (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 800  
Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min: 800  
Del.quantity cm3/  
1000H.: 75,0...76,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del.quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1215  
Del.quantity cm3/  
1000H.: 42,0...48,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 80,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (3,7...5,1)  
3rd speed 1/min: 1100  
TD travel mm: 6,2...7,0  
mm: (5,9...7,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 4,1...4,7  
2nd speed 1/min: 1100  
Supply-pump  
pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm3/10s: (40...153)



Delivery-quant. and breakaway char.:

1st speed 1/min: 1350  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1275  
Del. quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1225  
Del. quantity cm3/: 10,0...46,0  
1000H.: -  
4th speed 1/min: 1215  
Del. quantity cm3/: -  
1000H.: (40,5...49,5)  
5th speed 1/min: 1100  
Del. quantity cm3/: 73,0...76,0  
1000H.: (72,0...77,0)  
6th speed 1/min: 800  
Del. quantity cm3/: -  
1000H.: (73,2...77,8)  
7th speed 1/min: 500  
Del. quantity cm3/: 69,0...73,0  
1000H.: (68,0...74,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del. quantity cm3/: 0..3

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del. quantity cm3/: -  
1000H.: (16,0..24,0)  
2nd speed 1/min: 500  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del. quantity cm3/: -  
ind. 1000H.: 80,0  
2nd speed 1/min: 450  
Del. quantity cm3/: -  
ax. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

Mounting and assembly dimensions:

Designation  
K mm : -

M04

KF	mm	: 5,1...5,4
MS	mm	: 1,3..1,55
SVS max.	mm	: 3,6
XK	mm	: 20,2...22,2
XL	mm	: 9,3...12,7

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 B  
Edition : 09.07.87  
replaces : -  
Calibrating oil : ISO 4113  
Injection pump : VE 4/10F1150 R283  
Type number : O 460 404 052  
Customer Part-No. : 1329 125 C1

Customer-specific information  
Customer : CASE

Engine : D 239/743

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC): +-0,02

Indicator setting:  
Piston stroke mm: 1.0  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 800

Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min: 800  
Del.quantity cm3/  
1000H.: 67,5...68,5  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del.quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1190  
Del.quantity cm3/  
1000H.: 42,0...48,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 80,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (3,7...5,1)  
3rd speed 1/min: 1100  
TD travel mm: 6,2...7,0  
mm: (5,9...7,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 4,1...4,7  
2nd speed 1/min: 1100  
Supply-pump pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1100

M06

Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300  
Del.quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1260  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1210  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
4th speed 1/min: 1190  
Del.quantity cm3/: -  
1000H.: (40,5...49,5)  
5th speed 1/min: 1100  
Del.quantity cm3/: 63,8...66,8  
1000H.: (62,6...68,0)  
6th speed 1/min: 800  
Del.quantity cm3/: -  
1000H.: (65,3...70,7)  
7th speed 1/min: 500  
Del.quantity cm3/: 58,5...62,5  
1000H.: (57,1...63,9)

Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1100  
Del.quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del.quantity cm3/: -  
1000H.: (15,5...24,5)  
2nd speed 1/min: 500  
Del.quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del.quantity cm3/: -  
ind. 1000H.: 80,0  
2nd speed 1/min: 450  
Del.quantity cm3/: -  
ax. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3...1,55
SVS max.	mm	:	3,6
XK	mm	:	20,2...22,2
XL	mm	:	9,3...12,7

Remarks:

# BU...-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 C  
 Edition : 09.07.87  
 replaces : -  
 Calibrating oil : ISO 4113  
 Injection pump : VE 4/10F1150 R283  
 Type number : O 460 404 052  
 Customer Part-No. : 1329 126 C1

Customer-specific information  
 Customer : CASE

Engine : D 239/644

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 return temp. °C  
 with thermometer : 40...48  
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
 assembly : 1 688 901 020

Opening  
 pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
 x Wall thickness : 2  
 x Length mm : 840

Start of delivery  
 Prestroke mm : 0,2  
 (from BDC): +-0,02 (0,04)

Indicator setting:  
 Piston stroke mm: 1.0  
 Outlet : A

Start of delivery block  
 Piston stroke mm: -

Injection-pump setting values  
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
 Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 800  
Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min : 800  
Del.quantity cm3/  
1000H.: 70,0...71,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del.quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1100  
Del.quantity cm3/  
1000H.: 42,0...48,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 80,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (3,7...5,1)  
3rd speed 1/min: 1000  
TD travel mm: 5,4...6,2  
mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 4,1...4,7  
2nd speed 1/min: 1000  
Supply-pump  
pressure bar: 5,9...6,5

Overflow quantity at overflow valve:

1st speed 1/min: 500

M09

Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1050  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1200  
Del.quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1180  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1130  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
4th speed 1/min: 1100  
Del.quantity cm3/: -  
1000H.: (40,5...49,5)  
5th speed 1/min: 1000  
Del.quantity cm3/: 69,5...72,5  
1000H.: (68,3...73,7)  
6th speed 1/min: 800  
Del.quantity cm3/: -  
1000H.: (67,8...73,2)  
7th speed 1/min: 500  
Del.quantity cm3/: 62,5...66,5  
1000H.: (61,1...67,9)

Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1000  
Del.quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del.quantity cm3/: -  
1000H.: (15,5...24,5)  
2nd speed 1/min: 500  
Del.quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del.quantity cm3/: -  
ind. 1000H.: 80,0  
2nd speed 1/min: 450  
Del.quantity cm3/: -  
ax. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -

Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3...1,55
SVS max.	mm	:	3,6
XK	mm	:	20,2...22,2
XL	mm	:	9,3...12,7

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 D  
Edition : 09.07.87  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F1150 R283  
Type number : O 460 404 052  
Customer Part-No. : 1329 127 C1

Customer-specific information  
Customer : CASE

Engine : D 239/F-684 WT

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC) : +0,02 (0,04)

Indicator setting:  
Piston stroke mm: 1.0  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 800



Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min : 800  
Del.quantity cm3/  
1000H.: 70,0...71,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del.quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1210  
Del.quantity cm3/  
1000H.: 41,5...47,5

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 80,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (3,7...5,1)  
3rd speed 1/min: 1150  
TD travel mm: 6,6...7,4  
mm: (6,3...7,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 4,1...4,7  
2nd speed 1/min: 1150  
Supply-pump pressure bar: 6,5...7,1

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1150

Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1350  
Del.quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1270  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1220  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
4th speed 1/min: 1210  
Del.quantity cm3/: -  
1000H.: (40,0...49,0)  
5th speed 1/min: 1150  
Del.quantity cm3/: 65,2...68,2  
1000H.: (64,0...69,4)  
6th speed 1/min: 800  
Del.quantity cm3/: -  
1000H.: (67,8...73,2)  
7th speed 1/min: 500  
Del.quantity cm3/: 61,2...65,2  
1000H.: (59,8...66,6)

Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1150  
Del.quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del.quantity cm3/: -  
1000H.: (15,5...24,5)  
2nd speed 1/min: 500  
Del.quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del.quantity cm3/: -  
ind, 1000H.: 80,0  
2nd speed 1/min: 450  
Del.quantity cm3/: -  
ax, 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3...1,55
SVS max.	mm	:	3,6
XK	mm	:	20,2...22,2
XL	mm	:	9,3...12,7

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 E  
Edition : 09.07.87  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F1150 R283  
Type number : 0 460 404 052  
Customer Part-No. : 1329 128 C1

Customer-specific information  
Customer : CASE

Engine : D 239/684

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC):  $\pm 0,02$  (0,04)

Indicator setting:  
Piston stroke mm: 1.0  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 800

Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min: 800  
Del. quantity cm<sup>3</sup>/  
1000H.: 73,5...74,5  
Dispersion cm<sup>3</sup>/: 3,0  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del. quantity cm<sup>3</sup>/  
1000H.: 18,0...22,0  
Dispersion cm<sup>3</sup>/: 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/  
1000H.: 43,0...49,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 80,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (3,7...5,1)  
3rd speed 1/min: 1150  
TD travel mm: 6,6...7,4  
mm: (6,3...7,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 4,1...4,7  
2nd speed 1/min: 1150  
Supply-pump pressure bar: 6,6...7,4

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow quantity cm<sup>3</sup>/10s: 41...83  
2nd speed 1/min: 1150

Overflow quantity cm<sup>3</sup>/10s: 55...138  
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1400  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1310  
Del. quantity cm<sup>3</sup>/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1260  
Del. quantity cm<sup>3</sup>/: 0,0...10,0  
1000H.: -  
4th speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/: -  
1000H.: (41,5...50,5)  
5th speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 70,0...73,0  
1000H.: (68,8...74,2)  
6th speed 1/min: 800  
Del. quantity cm<sup>3</sup>/: -  
1000H.: (71,3...76,7)  
7th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 66,7...70,7  
1000H.: (65,3...72,1)

Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: -  
1000H.: (15,5...24,5)  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H.: 80,0  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: -  
ax. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3..1,55
SVS max.	mm	:	3,6
XK	mm	:	20,2...22,2
XL	mm	:	9,3...12,7

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 F  
Edition : 09.07.87  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/10F1150 R283  
Type number : 0 460 404 052  
Customer Part-No. : 1329 136 C1

Customer-specific information  
Customer : CASE

Engine : D 206/733 WT

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC): +-0,02 (0,04)

Indicator setting:  
Piston stroke mm: 1.0  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 800

Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min: 800  
Del.quantity cm3/  
1000H.: 70,8...71,8  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del.quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1130  
Del.quantity cm3/  
1000H.: 35,5...41,5

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 80,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (3,7...5,1)  
3rd speed 1/min: 1050  
TD travel mm: 5,8...6,6  
mm: (5,5...6,9)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 4,1...4,7  
2nd speed 1/min: 1050  
Supply-pump pressure bar: 6,1...6,7

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1050

Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1250  
Del.quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1200  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1150  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
4th speed 1/min: 1130  
Del.quantity cm3/: -  
1000H.: (34,0...43,0)  
5th speed 1/min: 1050  
Del.quantity cm3/: 69,8...71,8  
1000H.: (67,6...73,0)  
6th speed 1/min: 800  
Del.quantity cm3/: -  
1000H.: (68,6...74,0)  
7th speed 1/min: 500  
Del.quantity cm3/: 62,9...66,9  
1000H.: (61,5...68,3)

Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1050  
Del.quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del.quantity cm3/: -  
1000H.: (15,5...24,5)  
2nd speed 1/min: 500  
Del.quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del.quantity cm3/: -  
ind. 1000H.: 80,0  
2nd speed 1/min: 450  
Del.quantity cm3/: -  
ax. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3...1,55
SVS max.	mm	:	3,6
XK	mm	:	20,2...22,2
XL	mm	:	9,3...12,7

Remarks:



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 G  
Edition : 09.07.87  
replaces : -  
Calibrating oil : ISO 4113

Injection pump : VE 4/10F1150 R283  
Type number : O 460 404 052  
Customer Part-No. : 1329 137 C1

Customer-specific information  
Customer : CASE

Engine : D 206/584/585

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,2  
(from BDC) : +-0,02 (0,04)

Indicator setting:  
Piston stroke mm : 1.0  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 800

Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min: 800  
Del. quantity cm3/  
1000H.: 66,8...67,8  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del. quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1230  
Del. quantity cm3/  
1000H.: 37,0...43,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 80,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (3,7...5,1)  
3rd speed 1/min: 1150  
TD travel mm: 6,6...7,4  
mm: (6,3...7,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 4,1...4,7  
2nd speed 1/min: 1150  
Supply-pump pressure bar: 6,5...7,1

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow quantity cm3/10s: 41...83  
2nd speed 1/min: 1150

Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1350  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1290  
Del. quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1240  
Del. quantity cm3/: 0,0...10,0  
1000H.: -  
4th speed 1/min: 1230  
Del. quantity cm3/: -  
1000H.: (35,5...44,5)  
5th speed 1/min: 1150  
Del. quantity cm3/: 61,6...64,6  
1000H.: (60,4...65,8)  
6th speed 1/min: 800  
Del. quantity cm3/: -  
1000H.: (64,6...70,0)  
7th speed 1/min: 500  
Del. quantity cm3/: 56,7...60,7  
1000H.: (55,3...62,1)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150  
Del. quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del. quantity cm3/: -  
1000H.: (15,5...24,5)  
2nd speed 1/min: 500  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del. quantity cm3/: -  
ind. 1000H.: 80,0  
2nd speed 1/min: 450  
Del. quantity cm3/: -  
ax. 1000H.: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3...1,55
SVS max.	mm	:	3,6
XK	mm	:	20,2...22,2
XL	mm	:	9,3...12,7

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,0 13  
Edition : 07.07.87  
replaces : 09.85  
Calibrating oil : ISO 4113

Injection pump : VE 5/10F2400 L137  
Type number : O 460 405 030

Customer-specific information  
Customer : VW

Engine : 153 (SG)

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,14  
(from BDC): +-0,02 (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1400  
Setting value mm: 2,4...2,8

Supply-pump pressure:

Speed 1/min: 1400  
Setting value bar: 5,0...5,6

Full-load del. w/out charge press.:

Speed 1/min : 1400

Del. quantity cm3/  
1000H.: 32,5...33,5  
Dispersion cm3/: 2,5  
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm3/  
1000H.: 6,0...10,0  
Dispersion cm3/: 2,0  
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2650  
Del. quantity cm3/  
1000H.: 7,0...11,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 50,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000  
TD travel mm: 1,3...2,1  
mm: (0,9...2,5)  
2nd speed 1/min: 1400  
TD travel mm: -  
mm: (1,8...3,4)  
3rd speed 1/min: 2400  
TD travel mm: 5,1...5,9  
mm: (4,7...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump pressure bar: 3,4...4,0  
2nd speed 1/min: 2400  
Supply-pump pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 750  
2nd speed 1/min: 2400

Delivery-quant. and breakaway char.:

1st speed 1/min: 2750  
Del. quantity cm3/: 0,0...6,0  
1000H.: -  
2nd speed 1/min: 2650

Del. quantity cm3/: -  
1000H.: (5,0...13,0)  
3rd speed 1/min: 2550  
Del. quantity cm3/: 14,5...24,5  
1000H.: (13,5...25,5)  
4th speed 1/min: 2400  
Del. quantity cm3/: 28,0...30,0  
1000H.: (26,8...31,2)  
5th speed 1/min: 1400  
Del. quantity cm3/: -  
1000H.: (30,8...35,2)  
6th speed 1/min: 750  
Del. quantity cm3/: 23,3...26,3  
1000H.: (21,8...27,8)

Zero delivery (stop):

Electr. shutoff:  
Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 375  
Del. quantity cm3/: -  
1000H.: (4,0...12,0)  
2nd speed 1/min: 450  
Del. quantity cm3/: 0,0...3,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400  
Del. quantity cm3/: -  
ind. 1000H: 15,5  
2nd speed 1/min: 500  
Del. quantity cm3/: -  
ax. 1000H: 23,5

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,7...6,0  
MS mm : 1,7...1,9  
SVS max. mm : 2,8

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,0 I2  
Edition : 07.07.87  
replaces : 09.85  
Calibrating oil : ISO 4113  
  
Injection pump : VE 5/10F2400 L137-1  
Type number : 0 460 405 032  
  
Customer-specific information  
Customer : VW  
  
Engine : 153 (SG)

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,14  
(from BDC) :  $\pm 0,02$  (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1400  
Setting value mm: 2,4...2,8

Supply-pump pressure:

Speed 1/min: 1400  
Setting value bar: 5,0...5,6

Full-load del. w/out charge press.:

Speed 1/min : 1400

M26

Del.quantity cm3/  
1000H.: 32,5...33,5  
Dispersion cm3/: 2,5  
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 6,0...10,0  
Dispersion cm3/: 2,0  
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2650  
Del.quantity cm3/  
1000H.: 7,0...11,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 50,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000  
TD travel mm: 1,3...2,1  
mm: (0,9...2,5)  
2nd speed 1/min: 1400  
TD travel mm: -  
mm: (1,8...3,4)  
3rd speed 1/min: 2400  
TD travel mm: 5,1...5,9  
mm: (4,7...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump  
pressure bar: 3,4...4,0  
2nd speed 1/min: 2400  
Supply-pump  
pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 750  
2nd speed 1/min: 2400

Delivery-quant. and breakaway char.:

1st speed 1/min: 2750  
Del.quantity cm3/: 0,0...6,0  
1000H.: -  
2nd speed 1/min: 2650

Del. quantity cm3/: -  
1000H.: (5,0...13,0)  
3rd speed 1/min: 2550  
Del. quantity cm3/: 14,5...24,5  
1000H.: (13,5...25,5)  
4th speed 1/min: 2400  
Del. quantity cm3/: 28,0...30,0  
1000H.: (26,8...31,2)  
5th speed 1/min: 1400  
Del. quantity cm3/: -  
1000H.: (30,8...35,2)  
6th speed 1/min: 750  
Del. quantity cm3/: 23,3...26,3  
1000H.: (21,8...27,8)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 375  
Del. quantity cm3/: -  
1000H.: (4,0...12,0)  
2nd speed 1/min: 450  
Del. quantity cm3/: 0,0...3,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400  
Del. quantity cm3/: -  
ind. 1000H: 15,5

2nd speed 1/min: 500  
Del. quantity cm3/: -  
ax. 1000H: 23,5

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : -  
KF mm : 5,7...6,0  
MS mm : 1,7...1,9  
SVS max. mm : 2,8

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,3 B1  
Edition : 20.07.87  
replaces : 04.86  
Calibrating oil : ISO 4113

Injection pump : VE 6/10F2400 L32  
Type number : 0 460 406 003

Customer-specific information  
Customer : VW

Engine : 087

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 340

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1500  
Setting value bar: 5,2...5,8

Full-load del. w/out charge press.:

Speed 1/min : 1500  
Del. quantity cm3/  
1000H.: 28,5...29,5  
Dispersion cm3/: 2,5  
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm3/  
1000H.: 6,0...10,0  
Dispersion cm3/: 2,0  
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2700  
Del. quantity cm3/  
1000H.: 7,0...11,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 35,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 5,7...6,5  
mm: (5,4...6,8)  
2nd speed 1/min: 1000  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
3rd speed 1/min: 1500  
TD travel mm: -  
mm: (2,3...3,7)  
4th speed 1/min: 2400  
TD travel mm: 5,7...6,5  
mm: (5,4...6,8)

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump  
pressure bar: 3,2...3,8  
2nd speed 1/min: 2400  
Supply-pump  
pressure bar: 7,5...8,1

Overflow quantity at overflow valve:

1st speed 1/min: 750  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 2400  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:  
1st speed 1/min: 2800



Del. quantity cm<sup>3</sup>/: 0,0...6,0  
1000H.: -  
2nd speed 1/min: 2700  
Del. quantity cm<sup>3</sup>/: -  
1000H.: (5,0...13,0)  
3rd speed 1/min: 2625  
Del. quantity cm<sup>3</sup>/: 14,5...24,5  
1000H.: (13,5...25,5)  
4th speed 1/min: 2400  
Del. quantity cm<sup>3</sup>/: 23,0...25,0  
1000H.: (21,8...26,2)  
5th speed 1/min: 1500  
Del. quantity cm<sup>3</sup>/: -  
1000H.: (26,8...31,2)  
6th speed 1/min: 750  
Del. quantity cm<sup>3</sup>/: 26,0...29,0  
1000H.: (24,5...30,5)

Zero delivery (stop):

Electr. shutoff:  
Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: -  
1000H.: (4,0...12,0)  
2nd speed 1/min: 600  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H.: 20,0  
2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: -  
ax. 1000H.: 25,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : 3,2...3,4  
KF mm : 6,3...6,6  
MS mm : 1,5...1,75  
SVS max. mm : 4,1  
XK mm : 18,5...20,5

XL

mm : 9,2...12,9

Remarks:

N01

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,3 B  
Edition : 20.07.87  
replaces : 04.86  
Calibrating oil : ISO 4113

Injection pump : VE 6/10F2400 L32-1  
Type number : 0 460 406 009

Customer-specific information  
Customer : VW

Engine : 087

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1500  
Setting value bar: 5,2...5,8

Full-load del. w/out charge press.:

Speed 1/min : 1500  
Del. quantity cm<sup>3</sup>/  
1000H.: 28,5...29,5  
Dispersion cm<sup>3</sup>/: 2,5  
1000H.: (3,0)

### Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/  
1000H.: 6,0...10,0  
Dispersion cm<sup>3</sup>/: 2,0  
1000H.: (3,0)

### Full-load speed regulation:

Speed 1/min: 2700  
Del. quantity cm<sup>3</sup>/  
1000H.: 7,0...11,0

### Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 35,0

Inspection-pump test specifications  
Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 5,7...6,5  
mm: (5,4...6,8)  
2nd speed 1/min: 1000  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
3rd speed 1/min: 1500  
TD travel mm: -  
mm: (2,3...3,7)  
4th speed 1/min: 2400  
TD travel mm: 5,7...6,5  
mm: (5,4...6,8)

### Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump pressure bar: 3,2...3,8  
2nd speed 1/min: 2400  
Supply-pump pressure bar: 7,5...8,1

### Overflow quantity at overflow valve:

1st speed 1/min: 750  
Overflow : 41...83  
quantity cm<sup>3</sup>/10s: (26...98)  
2nd speed 1/min: 2400  
Overflow : 55...138  
quantity cm<sup>3</sup>/10s: (40...153)

### Delivery-quant. and breakaway char.:

1st speed 1/min: 2800

Del. quantity cm<sup>3</sup>/: 0,0...6,0  
1000H.: -

2nd speed 1/min: 2700

Del. quantity cm<sup>3</sup>/: -  
1000H.: (5,0...13,0)

3rd speed 1/min: 2625

Del. quantity cm<sup>3</sup>/: 14,5...24,5  
1000H.: (13,5...25,5)

4th speed 1/min: 2400

Del. quantity cm<sup>3</sup>/: 23,0...25,0  
1000H.: (21,8...26,2)

5th speed 1/min: 1500

Del. quantity cm<sup>3</sup>/: -  
1000H.: (26,8...31,2)

6th speed 1/min: 750

Del. quantity cm<sup>3</sup>/: 26,0...29,0  
1000H.: (24,5...30,5)

### Zero delivery (stop):

#### Mech. shutoff:

Speed 1/min: 2400  
Del. quantity cm<sup>3</sup>/: 0...3  
1000H.: -

#### Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm<sup>3</sup>/: 0,0...3,0  
max. 1000H.: -

### Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: -  
1000H.: (4,0...12,0)  
2nd speed 1/min: 600  
Del. quantity cm<sup>3</sup>/: 0,0...4,0  
1000H.: -

### Automatic starting fuel delivery:

1st speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: -  
ind. 1000H.: 20,0

2nd speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: -  
ax. 1000H.: 25,0

### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

### Mounting and assembly dimensions:

### Designation

K	mm	:	3,2...3,4
KF	mm	:	6,3...6,6
MS	mm	:	1,5...1,75
SVS max.	mm	:	3,6
XK	mm	:	18,5...20,5
XL	mm	:	9,2...12,9

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,4 K  
Edition : 20.07.87  
replaces : 04.86  
Calibrating oil : ISO 4113

Injection pump : VE 6/10F2400 L32-2  
Type number : 0 460 406 037

Customer-specific information  
Customer : VW

Engine : 087

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1500  
Setting value bar: 5,2...5,8

Full-load del. w/out charge press.:

Speed 1/min : 1500  
Del. quantity cm<sup>3</sup>/  
1000H.: 28,5...29,5  
Dispersion cm<sup>3</sup>/  
1000H.: (3,0)

### Low-idle speed regulation:

Speed 1/min: 375  
Del. quantity cm3/  
1000H.: 6,0...10,0  
Dispersion cm3/: 2,0  
1000H.: (3,0)

### Full-load speed regulation:

Speed 1/min: 2700  
Del. quantity cm3/  
1000H.: 7,0...11,0

### Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 35,0

### Inspection-pump test specifications Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 5,7...6,5  
mm: (5,4...6,8)  
2nd speed 1/min: 1000  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
3rd speed 1/min: 1500  
TD travel mm: -  
mm: (2,3...3,7)  
4th speed 1/min: 2400  
TD travel mm: 5,7...6,5  
mm: (5,4...6,8)

### Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump pressure bar: 3,2...3,8  
2nd speed 1/min: 2400  
Supply-pump pressure bar: 7,5...8,1

### Overflow quantity at overflow valve:

1st speed 1/min: 750  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 2400  
Overflow : 55...138  
quantity cm3/10s: (40...153)

### Delivery-quant. and breakaway char.:

1st speed 1/min: 2800

Del. quantity cm3/: 0,0...6,0

1000H.: -  
2nd speed 1/min: 2700  
Del. quantity cm3/: -

1000H.: (5,0...13,0)  
3rd speed 1/min: 2625  
Del. quantity cm3/: 14,5...24,5

1000H.: (13,5...25,5)  
4th speed 1/min: 2400  
Del. quantity cm3/: 23,0...25,0

1000H.: (21,8...26,2)  
5th speed 1/min: 1500  
Del. quantity cm3/: -

1000H.: (26,8...31,2)  
6th speed 1/min: 750  
Del. quantity cm3/: 26,0...29,0

1000H.: (24,5...30,5)

### Zero delivery (stop):

### Electr. shutoff:

Speed 1/min: 375  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

### Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 375  
Del. quantity cm3/: -  
1000H.: (4,0...12,0)  
2nd speed 1/min: 600  
Del. quantity cm3/: 0,0...4,0  
1000H.: -

### Automatic starting fuel delivery:

1st speed 1/min: 400  
Del. quantity cm3/: -  
ind. 1000H.: 20,0

2nd speed 1/min: 500  
Del. quantity cm3/: -  
ax. 1000H.: 25,0

### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

### Mounting and assembly dimensions:

### Designation

K mm : 3,2...3,4  
KF mm : 6,3...6,6  
MS mm : 1,5...1,75  
SVS max. mm : 3,6

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,4 K2  
Edition : 20.07.87  
replaces : 04.86  
Calibrating oil : ISO 4113

Injection pump : VE 6/10F2400 L32-3  
Type number : 0 460 406 038

Customer-specific information  
Customer : VW

Engine : 087

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 000

Opening  
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500  
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1500  
Setting value bar: 5,2...5,8

Full-load del. w/out charge press.:

Speed 1/min : 1500  
Del. quantity cm<sup>3</sup>/  
1000H.: 28,5...29,5  
Dispersion cm<sup>3</sup>/  
1000H.: (3,0)



### Low-idle speed regulation:

Speed 1/min: 375  
Del.quantity cm3/  
1000H.: 6,0...10,0  
Dispersion cm3/: 2,0  
1000H.: (3,0)

### Full-load speed regulation:

Speed 1/min: 2700  
Del.quantity cm3/  
1000H.: 7,0...11,0

### Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 35,0

### Inspection-pump test specifications Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 5,7...6,5  
mm: (5,4...6,8)  
2nd speed 1/min: 1000  
TD travel mm: 0,8...1,6  
mm: (0,5...1,9)  
3rd speed 1/min: 1500  
TD travel mm: -  
mm: (2,3...3,7)  
4th speed 1/min: 2400  
TD travel mm: 5,7...6,5  
mm: (5,4...6,8)

### Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump pressure bar: 3,2...3,8  
2nd speed 1/min: 2400  
Supply-pump pressure bar: 7,5...8,1

### Overflow quantity at overflow valve:

1st speed 1/min: 750  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 2400  
Overflow : 55...138  
quantity cm3/10s: (40...153)

### Delivery-quant. and breakaway char.: 1st speed 1/min: 2800

Del.quantity cm3/: 0,0...6,0  
1000H.: -

2nd speed 1/min: 2700  
Del.quantity cm3/: -  
1000H.: (5,0...13,0)

3rd speed 1/min: 2625  
Del.quantity cm3/: 14,5...24,5  
1000H.: (13,5...25,5)

4th speed 1/min: 2400  
Del.quantity cm3/: 23,0...25,0  
1000H.: (21,8...26,2)

5th speed 1/min: 1500  
Del.quantity cm3/: -  
1000H.: (26,8...31,2)

6th speed 1/min: 750  
Del.quantity cm3/: 26,0...29,0  
1000H.: (24,5...30,5)

### Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 2400  
Del.quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:  
Speed 1/min: 375  
ELAB volt: -  
Del.quantity cm3/: 0,0...3,0  
max. 1000H.: -

### Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 375  
Del.quantity cm3/: -  
1000H.: (4,0...12,0)  
2nd speed 1/min: 600  
Del.quantity cm3/: 0,0...4,0  
1000H.: -

### Automatic starting fuel delivery:

1st speed 1/min: 400  
Del.quantity cm3/: -  
ind. 1000H: 20,0

2nd speed 1/min: 500  
Del.quantity cm3/: -  
ax. 1000H: 25,0

### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

### Mounting and assembly dimensions:

### Designation

K	mm	:	3,2...3,4
KF	mm	:	6,3...6,6
MS	mm	:	1,5...1,75
SVS max.	mm	:	3,6

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA  
Edition : 17.07.87  
replaces : 16.12.86  
Calibrating oil : ISO 4113  
  
Injection pump : VE 6/10F1400 R209-1  
Type number : O 460 406 052  
  
Customer-specific information  
Customer : ONAN  
  
Engine : L 634T

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 000  
  
Opening  
pressure bar : 147...150  
  
Test inj. tubing : 1 680 750 017  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840  
  
Start of delivery  
Prestroke mm : 0,2  
(from BDC): +-0,02 (0,04)  
  
Injection-pump setting values  
Test specifications in parentheses  
  
Timing-device travel:  
  
Speed 1/min: 1100  
Charge press. hPa: 800  
Setting value mm: 2,8...3,2  
  
Supply-pump pressure:  
  
Speed 1/min: 1100  
Charge press. hPa: 800  
Setting value bar: 3,8...4,4  
  
Full-load del. with charge press.:

Speed 1/min: 1100  
Charge press. hPa: 800  
Del. quantity cm3/  
1000H.: 61,0...62,0  
Dispersion cm3/ : 3,0  
1000H : -

Full-load del. w/out charge press.:

Speed 1/min : 700  
Del. quantity cm3/  
1000H.: 44,5...45,5

Low-idle speed regulation:

Speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm3/  
1000H.: 23,0...27,0  
Dispersion cm3/ : 3,0  
1000H.: -

Full-load speed regulation:

Speed 1/min: 1480  
Charge press. hPa: 800  
Del. quantity cm3/  
1000H: 39,0...45,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 42,0

Load-dependent start of delivery:

Speed 1/min: 1100

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
Charge press. hPa: 800  
TD travel mm: 1,4...2,2  
mm: (1,1...2,5)  
2nd speed 1/min: 1100  
TD travel mm: -  
mm: (2,3...3,7)  
3rd speed 1/min: 1400  
Charge press. hPa: 800  
TD travel mm: 4,2...4,8  
mm: (3,8...5,2)

Supply-pump pressure characteristic:

1st speed 1/min: 400

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Charge press. hPa: 800  
Supply-pump  
pressure bar: 1,2...1,8  
2nd speed 1/min: 1400  
Charge press. hPa: 800  
Supply-pump  
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 800  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1400  
Charge press. hPa: 800  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700  
Charge-air pressure-setting  
point hPa: 200  
Del. quantity cm3/: 47,0...48,0  
1000H.: (45,2...49,8)  
2nd speed 1/min: 1600  
Charge press. hPa: 800  
Del. quantity cm3/: 0,0...3,6  
1000H.: -  
3rd speed 1/min: 1560  
Charge press. hPa: 800  
Del. quantity cm3/: 6,0...14,0  
1000H.: (5,5...14,5)  
4th speed 1/min: 1480  
Charge press. hPa: 800  
Del. quantity cm3/: -  
1000H.: (37,5...46,5)  
5th speed 1/min: 1400  
Charge press. hPa: 800  
Del. quantity cm3/: 57,0...60,0  
1000H.: (56,2...60,8)  
6th speed 1/min: 1100  
Charge press. hPa: 800  
Del. quantity cm3/: -  
1000H.: (59,2...63,8)  
7th speed 1/min: 1100  
Charge press. hPa: 800  
Del. quantity cm3/: -  
1000H.: (59,2...63,8)  
8th speed 1/min: 700  
Charge press. hPa: 800  
Del. quantity cm3/: 58,0...61,0  
1000H.: (57,2...61,8)  
9th speed 1/min: 700  
Charge press. hPa: -  
Del. quantity cm3/: -  
1000H.: (42,7...47,3)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400  
Del. quantity cm3/: 0..3  
1000H.: -

Electr. shutoff:

Speed 1/min: 350  
ELAB volt: -  
Del. quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del. quantity cm3/: -  
1000H.: (21,0..29,0)  
2nd speed 1/min: 400  
Del. quantity cm3/: 9,5...16,5  
1000H.: (8,5...17,5)  
3rd speed 1/min: 450  
Del. quantity cm3/: 0,0...3,6  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 230  
Del. quantity cm3/: -  
ind. 1000H: 42,0

2nd speed 1/min: 300  
Del. quantity cm3/: -  
ax. 1000H: 42,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,7...6,0
MS	mm	: 0,7..0,95
SVS max.	mm	: 1,6

Remarks:

Correction at adjusting nut (46)

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 5,9 A  
Edition : 17.07.87  
replaces : -  
Calibrating oil : ISO 4113  
Injection pump : VE 6/10F1150 R287  
Type number : 0 460 406 056

Customer-specific information  
Customer : CASE

Engine : D 358-1056

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 800  
Setting value mm: 5,4...5,8

Supply-pump pressure:

Speed 1/min: 800  
Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min : 800

Del.quantity cm3/  
1000H.: 72,5...73,5  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 350  
Del.quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 3,0  
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1200  
Del.quantity cm3/  
1000H.: 49,0...55,0

Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 2,4...3,2  
mm: (2,1...3,5)  
2nd speed 1/min: 800  
TD travel mm: -  
mm: (4,9...6,3)  
3rd speed 1/min: 1000  
TD travel mm: 6,7...7,5  
mm: (6,4...7,8)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure bar: 4,0...4,6  
2nd speed 1/min: 1000  
Supply-pump  
pressure bar: 6,1...6,7

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1100  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:  
1st speed 1/min: 1350

Del.quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1300  
Del.quantity cm3/: 0,0...10,0  
1000H.: -  
3rd speed 1/min: 1250  
Del.quantity cm3/: 10,0...50,0  
1000H.: -  
4th speed 1/min: 1200  
Del.quantity cm3/: -  
1000H.: (47,5...56,5)  
5th speed 1/min: 1100  
Del.quantity cm3/: 76,5...79,5  
1000H.: (75,5...80,5)  
6th speed 1/min: 800  
Del.quantity cm3/: -  
1000H.: (70,7...75,3)  
7th speed 1/min: 500  
Del.quantity cm3/: 71,0...75,0  
1000H.: (70,0...76,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100  
Del.quantity cm3/: 0..3  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del.quantity cm3/: -  
1000H.: (16,0...24,0)  
2nd speed 1/min: 450  
Del.quantity cm3/: 0,0...4,9  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del.quantity cm3/: -  
ind. 1000H: 80,0  
2nd speed 1/min: 450  
Del.quantity cm3/: -  
ax. 1000H: 80,0

Shutoff electromagnet:

Cut-in  
min. voltage : -  
Rated voltage : -

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4  
KF mm : 5,7...6,0  
MS mm : 1,4...1,65

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SVS max. mm : 1,6

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF 2,SK  
Edition : 30.06.87  
replaces : 08.84  
Calibrating oil : ISO 4113

Injection pump : VE 4/11F1900 R127  
Type number : 0 460 414 008

Customer-specific information  
Customer : IVECO-SOFIM

Engine : 8140.21

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 023

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : 0,3  
(from BDC):  $\pm 0,02$  (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100  
Charge press. hPa: 1000  
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 1100  
Charge press. hPa: 1000



Setting value bar: 5,3...5,9

Full-load del. with charge press.:

Speed 1/min: 1100  
Charge press. hPa: 1000  
Del. quantity cm3/  
1000H.: 42,5...43,5  
Dispersion cm3/ : 3,5  
1000H.: (4,0)

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm3/  
1000H.: 39,5...40,5

Low-idle speed regulation:

Speed 1/min: 400  
Del. quantity cm3/  
1000H.: 13,0...17,0  
Dispersion cm3/ : 3,0  
1000H.: (4,0)

Full-load speed regulation:

Speed 1/min: 2300  
Charge press. hPa: 1000  
Del. quantity cm3/  
1000H.: 18,0...24,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 60,0

Load-dependent start of delivery:

Speed 1/min: 1100

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
Charge press. hPa: 1000  
TD travel mm: 2,4...3,2  
mm: (2,1...3,5)  
2nd speed 1/min: 1100  
Charge press. hPa: 1000  
TD travel mm: -  
mm: (3,7...5,1)  
3rd speed 1/min: 1500  
Charge press. hPa: 1000  
TD travel mm: 5,8...6,6  
mm: (5,5...6,9)  
4th speed 1/min: 1900

Charge press. hPa: 1000  
TD travel mm: 7,6...8,4  
mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1000  
Supply-pump pressure bar: 3,8...4,4  
2nd speed 1/min: 1900  
Charge press. hPa: 1000  
Supply-pump pressure bar: 7,5...8,1

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: -  
Overflow : 55...138  
quantity cm3/10s: (40...153)  
2nd speed 1/min: 1900  
Charge press. hPa: -  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900  
Charge-air pressure-setting point hPa: 400  
LBA stroke mm: 3,5  
Del. quantity cm3/ : 37,0...38,0  
1000H.: (34,7...40,2)  
2nd speed 1/min: 2450  
Charge press. hPa: 1000  
Del. quantity cm3/ : 0,0...10,0  
1000H.: -  
3rd speed 1/min: 2300  
Charge press. hPa: 1000  
Del. quantity cm3/ : -  
1000H.: (16,5...25,5)  
4th speed 1/min: 2100  
Charge press. hPa: 1000  
Del. quantity cm3/ : 30,0...38,0  
1000H.: (29,5...38,5)  
5th speed 1/min: 1900  
Charge press. hPa: 1000  
Del. quantity cm3/ : 37,75...40,25  
1000H.: (36,3...41,7)  
6th speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/ : 39,75...42,25  
1000H.: (38,3...43,7)  
7th speed 1/min: 1100  
Charge press. hPa: 1000  
Del. quantity cm3/ : -  
1000H.: (40,3...45,7)  
8th speed 1/min: 500  
Charge press. hPa: -

Del.quantity cm3/: -  
1000H: (37,3...42,7)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1900  
Del.quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
1000H.: 25,5...34,5)  
2nd speed 1/min: 400  
Del.quantity cm3/: 13,0...17,0  
1000H.: (10,5...19,5)  
3rd speed 1/min: 550  
Del.quantity cm3/: 0,0...5,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 200  
Del.quantity cm3/: -  
ind. 1000H: 55,0

2nd speed 1/min: 350  
Del.quantity cm3/: -  
ax. 1000H: 55,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : -  
KF mm : K-0T  
MS mm : 0,9...1,15  
SVS max. mm : 2,4

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 5,8 B5  
Edition : 20.07.87  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/11F1400 R39-1  
Type number : O 460 414 035  
  
Customer-specific information  
Customer : PERKINS  
  
Engine : Q 20.B.4.236 V

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 022  
  
Opening  
pressure bar : 130...133  
  
Test inj. tubing : 1 680 750 073  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450  
  
Start of delivery  
Prestroke mm : 0,3  
(from BDC) : +0,02 (0,04)  
  
Injection-pump setting values  
Test specifications in parentheses  
  
Timing-device travel:  
  
Speed 1/min: 1100  
Setting value mm: 4,6...5,0  
  
Supply-pump pressure:  
  
Speed 1/min: 1100  
Setting value bar: 4,7...5,3  
  
Full-load del. w/out charge press.:  
  
Speed 1/min : 1100

Del. quantity cm3/  
1000H.: 72,5...73,5  
Dispersion cm3/: 2,5  
1000H.: (4,0)

Low-idle speed regulation:

Speed 1/min: 350  
Del. quantity cm3/  
1000H.: 18,0...22,0  
Dispersion cm3/: 2,5  
1000H.: (4,0)

Full-load speed regulation:

Speed 1/min: 1500  
Del. quantity cm3/  
1000H.: 49,0...55,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 75,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 0,2...0,8  
mm: (0,0...1,2)  
2nd speed 1/min: 1100  
TD travel mm: -  
mm: (4,1...5,5)  
3rd speed 1/min: 1300  
TD travel mm: 5,8...6,6  
mm: (5,5...6,9)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure bar: 2,9...3,5  
2nd speed 1/min: 1300  
Supply-pump pressure bar: 5,3...5,9

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1400  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:  
1st speed 1/min: 1700

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Del. quantity cm3/: 0,0...1,5  
1000H.: -  
2nd speed 1/min: 1550  
Del. quantity cm3/: 28,5...35,5  
1000H.: (27,5...36,5)  
3rd speed 1/min: 1500  
Del. quantity cm3/: 49,0...55,0  
1000H.: (47,5...56,5)  
4th speed 1/min: 1300  
Del. quantity cm3/: 70,7...73,3  
1000H.: (69,4...74,6)  
5th speed 1/min: 1100  
Del. quantity cm3/: -  
1000H.: (70,4...74,6)  
6th speed 1/min: 500  
Del. quantity cm3/: 42,0...45,0  
1000H.: (40,1...46,9)

Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1400  
Del. quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del. quantity cm3/: -  
1000H.: (15,5...24,5)  
2nd speed 1/min: 400  
Del. quantity cm3/: 6,0...12,0  
1000H.: (4,5...13,5)  
3rd speed 1/min: 450  
Del. quantity cm3/: 0,0...1,5  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 200  
Del. quantity cm3/: -  
ind. 1000H: 30,0  
2nd speed 1/min: 250  
Del. quantity cm3/: -  
ax. 1000H: 40,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation  
K mm : -  
KF mm : 5,1...5,4  
MS mm : 0,6...0,8

SVS max. mm : -

Remarks:

## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 3,6 K  
Edition : 20.07.87  
replaces : 18.12.86  
Calibrating oil : ISO 4113

Injection pump : VE 4/11F1350 R257  
Type number : 0 460 414 039

Customer-specific information  
Customer : FIAT-IVECO

Engine : 8040.25.200

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder  
assembly : 1 688 901 020

Opening  
pressure bar : 172...175

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 840

Start of delivery  
Prestroke mm : 0,4  
(from BDC): +-0,02 (0,04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000  
Charge press. hPa: 1000  
Setting value mm: 3,8...4,2

Supply-pump pressure:

Speed 1/min: 1000  
Charge press. hPa: 1000

Setting value bar: 5,7...6,3

Full-load del. with charge press.:

Speed 1/min: 800  
Charge press. hPa: 1000  
Del. quantity cm3/  
1000H.: 92,5...93,5  
Dispersion cm3/ : 5,0  
1000H.: -

Full-load del. w/out charge press.:

Speed 1/min : 500  
Del. quantity cm3/  
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm3/  
1000H.: 22,0...26,0  
Dispersion cm3/ : 3,5  
1000H.: (4,0)

Full-load speed regulation:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/  
1000H.: 34,0...40,0

Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm3/1000H.: 90,0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
Charge press. hPa: 1000  
TD travel mm: 1,7...2,5  
mm: (1,4...2,8)  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
TD travel mm: -  
mm: (3,3...4,7)  
3rd speed 1/min: 1350  
Charge press. hPa: 1000  
TD travel mm: 6,3...7,1  
mm: (6,0...7,4)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Charge press. hPa: 1000

Supply-pump  
pressure bar: 3,6...4,2  
2nd speed 1/min: 800  
Charge press. hPa: 1000  
Supply-pump  
pressure bar: 4,8...5,4  
3rd speed 1/min: 1350  
Charge press. hPa: 1000  
Supply-pump  
pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1350  
Charge press. hPa: 1000  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500  
Charge-air pressure-setting  
point hPa: 250  
Del. quantity cm3/ : 79,0...80,0  
1000H.: (76,5...82,5)  
2nd speed 1/min: 1600  
Charge press. hPa: 1000  
Del. quantity cm3/ : 0,0...3,0  
1000H.: -  
3rd speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/ : -  
1000H.: (31,0...43,0)  
4th speed 1/min: 1350  
Charge press. hPa: 1000  
Del. quantity cm3/ : 86,5...89,5  
1000H.: (85,0...91,0)  
5th speed 1/min: 800  
Charge press. hPa: 1000  
Del. quantity cm3/ : -  
1000H.: (90,0...96,0)  
6th speed 1/min: 500  
Charge press. hPa: 1000  
Del. quantity cm3/ : 83,5...86,5  
1000H.: (82,0...88,0)  
7th speed 1/min: 500  
Charge press. hPa: -  
Del. quantity cm3/ : -  
1000H.: (66,0...72,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1350  
Del. quantity cm3/ : 0...3  
1000H.: -

Electr. shutoff:  
Speed 1/min: 350  
ELAB volt: -  
Del.quantity cm3/: 0,0...3,0  
max. 1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del.quantity cm3/: -  
1000H.: (19,0...29,0)  
2nd speed 1/min: 400  
Del.quantity cm3/: 2,5...9,5  
1000H.: -  
3rd speed 1/min: 430  
Del.quantity cm3/: 0,0...3,0  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 150  
Del.quantity cm3/: -  
ind. 1000H: 90,0

2nd speed 1/min: 230  
Del.quantity cm3/: -  
ax. 1000H: 60,0

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,2...5,5
MS	mm	:	1,3...1,55
SVS max.	mm	:	5,6
XK	mm	:	17,0...19,0
XL	mm	:	14,2...17,6

Remarks:

Correction at adjusting nut (46)



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 5,0 A  
Edition : 20.07.87  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/11F1500 R266  
Type number : 0 460 414 041  
  
Customer-specific information  
Customer : PERKINS  
  
Engine : 500 HYDROVAN

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 022  
  
Opening  
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450

Start of delivery  
Prestroke mm : 0,5  
(from BDC): +0,02 (0,04)

Indicator setting:  
Piston stroke mm : 1.42  
Outlet : A

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel:

Speed 1/min: 1100  
Setting value mm: 2,4...2,8

### Supply-pump pressure:

Speed 1/min: 1100  
Setting value bar: 4,9...5,5

### Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm<sup>3</sup>/  
1000H.: 25,9...26,9  
Dispersion cm<sup>3</sup>/: 3,5  
1000H.: (4,0)

### Low-idle speed regulation:

Speed 1/min: 350  
Del. quantity cm<sup>3</sup>/  
1000H.: 11,0...15,0  
Dispersion cm<sup>3</sup>/: 3,0  
1000H.: (4,0)

### Full-load speed regulation:

Speed 1/min: 1600  
Del. quantity cm<sup>3</sup>/  
1000H.: 12,0...18,0

### Start:

Speed 1/min: 100  
Del. quantity : -  
mind cm<sup>3</sup>/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

### Timing-device characteristic:

1st speed 1/min: 700  
TD travel mm: 0,4...1,2  
mm: (0,1...1,5)  
2nd speed 1/min: 1100  
TD travel mm: -  
mm: (1,9...3,3)  
3rd speed 1/min: 1350  
TD travel mm: 3,4...4,2  
mm: (3,1...4,5)  
4th speed 1/min: 1500  
TD travel mm: 3,7...4,5  
mm: (3,4...4,8)

### Supply-pump pressure characteristic:

1st speed 1/min: 700  
Supply-pump  
pressure bar: 3,5...4,1  
2nd speed 1/min: 1500  
Supply-pump  
pressure bar: 6,4...7,0

### Overflow quantity at overflow valve:

1st speed 1/min: 700

Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1500  
Overflow : 55...138  
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1650  
Del. quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1600  
Del. quantity cm3/: -  
1000H.: (10,5...19,5)  
3rd speed 1/min: 1500  
Del. quantity cm3/: 45,5...48,5  
1000H.: (44,4...49,6)  
4th speed 1/min: 1100  
Del. quantity cm3/: 44,8...47,8  
1000H.: (43,7...48,9)  
5th speed 1/min: 800  
Del. quantity cm3/: 36,3...38,3  
1000H.: (34,7...39,9)  
6th speed 1/min: 600  
Del. quantity cm3/: -  
1000H.: (23,8...29,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1500  
Del. quantity cm3/: -  
1000H.: -

Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del. quantity cm3/: -  
1000H.: (8,5...17,5)  
2nd speed 1/min: 400  
Del. quantity cm3/: 3,0...9,0  
1000H.: (1,5...10,5)  
3rd speed 1/min: 460  
Del. quantity cm3/: 0,0...4,5  
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300  
Del. quantity cm3/: -  
ind. 1000H: 33,0  
2nd speed 1/min: 400  
Del. quantity cm3/: 20,0...35,0  
ax. 1000H: -

Shutoff electromagnet:

Cut-in  
min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	K-OT
MS	mm	:	1,2...1,45
SVS max.	mm	:	3,8

Remarks:

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 5,0 B  
Edition : 20.07.87  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE 4/11F1500 R266-1  
Type number : 0 460 414 042  
  
Customer-specific information  
Customer : PERKINS  
  
Engine : 500 HYDROVAN

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return temp. °C  
with thermometer : 40...48  
electronically : 42...50  
  
Inlet press., bar : 0,35  
  
Calibrating nozzle-holder  
assembly : 1 688 901 022  
  
Opening  
pressure bar : 130...133  
  
Test inj. tubing : 1 680 750 073  
  
Outside diameter : 6  
x Wall thickness : 2  
x Length mm : 450  
  
Start of delivery  
Prestroke mm : 0,5  
(from BDC): +-0,02 (0,04)  
  
Indicator setting:  
Piston stroke mm: 1.42  
Outlet : A  
  
Injection-pump setting values  
Test specifications in parentheses  
  
Timing-device travel:  
  
Speed 1/min: 1100  
Setting value mm: 2,4...2,8  
  
Supply-pump pressure:  
  
Speed 1/min: 1100  
Setting value bar: 4,9...5,5

Rated voltage : 12,0  
ull-load del. w/out charge press.:  
Mounting and assembly dimensions:  
peed 1/min : 600  
Designation: cm3/  
K mm : - ,9...26,9  
KF mm : K-0T  
MS mm : 1,2...1,45  
SVS max. mm : 3,8

ow-idle speed regulation:  
Remarks:  
Speed 1/min: 350  
Del.quantity cm3/  
1000H.: 11,0...15,0  
Dispersion cm3/: 3,0  
1000H.: (4,0)  
Full-load speed regulation:

Speed 1/min: 1600  
Del.quantity cm3/  
1000H: 12,0...18,0

#### Start:

Speed 1/min: 100  
Del.quantity : -  
mind cm3/1000H.: 70,0

Inspection-pump test specifications  
Test specifications in parentheses

#### Timing-device characteristic:

1st speed 1/min: 700  
TD travel mm: 0,4...1,2  
mm: (0,1...1,5)  
2nd speed 1/min: 1100  
TD travel mm: -  
mm: (1,9...3,3)  
3rd speed 1/min: 1350  
TD travel mm: 3,4...4,2  
mm: (3,1...4,5)  
4th speed 1/min: 1500  
TD travel mm: 3,7...4,5  
mm: (3,4...4,8)

#### Supply-pump pressure characteristic:

1st speed 1/min: 700  
Supply-pump pressure bar: 3,5...4,1  
2nd speed 1/min: 1500  
Supply-pump pressure bar: 6,4...7,0

#### Overflow quantity at overflow valve:

1st speed 1/min: 700

Overflow : 41...83  
quantity cm3/10s: (26...98)  
2nd speed 1/min: 1500  
Overflow : 55...138  
quantity cm3/10s: (40...153)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 1650  
Del.quantity cm3/: 0,0...3,0  
1000H.: -  
2nd speed 1/min: 1600  
Del.quantity cm3/: -  
1000H.: (10,5...19,5)  
3rd speed 1/min: 1500  
Del.quantity cm3/: 45,5...48,5  
1000H.: (44,4...49,6)  
4th speed 1/min: 1100  
Del.quantity cm3/: 44,8...47,8  
1000H.: (43,7...48,9)  
5th speed 1/min: 800  
Del.quantity cm3/: 36,3...38,3  
1000H.: (34,7...39,9)  
6th speed 1/min: 600  
Del.quantity cm3/: -  
1000H.: (23,8...29,0)

#### Zero delivery (stop):

Mech. shutoff:  
Speed 1/min: 1500  
Del.quantity cm3/: -  
1000H.: -

#### Idle delivery:

Mfg. date: until : -  
1st speed 1/min: 350  
Del.quantity cm3/: -  
1000H.: (8,5...17,5)  
2nd speed 1/min: 400  
Del.quantity cm3/: 3,0...9,0  
1000H.: (1,5...10,5)  
3rd speed 1/min: 460  
Del.quantity cm3/: 0,0...4,5  
1000H.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 300  
Del.quantity cm3/: -  
ind. 1000H: 33,0  
2nd speed 1/min: 400  
Del.quantity cm3/: 20,0...35,0  
ax. 1000H: -

#### Shutoff electromagnet:

Cut-in  
min. voltage : 10,0